TRANSFORMATION PROCESSES AND OTHER COMPOSITIONAL TECHNIQUES IN SOME LARGER WORKS OF PETER MAXWELL DAVIES

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A Thesis Presented in Partial Fulfilment
of the Requirements for the Degree of
Master of Philosophy
of the Council for National
Academic Awards.

Kingston Polytechnic

February 1983

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ACKNOWLEDGEMENTS

Grateful thanks are extended to the following for their advice and assistance during the preparation of this study:

The Hire Library and Promotions Department, Boosey and Hawkes Ltd; Schott and Co. Ltd; the British Library; the British Institute of Recorded Sound; Mrs Judy Arnold; Mrs Margaret Hastings, Music Librarian at Kingston Polytechnic; Dr John Howard; Dr J. Murray Brown; Dr Roger Beeson.

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ABSTRACT

At forty-eight, Peter Maxwell Davies is established as one of Britain's leading composers. Although his works are now heard internationally, there has so far been little detailed study of the procedures within them. Two elements may be recognised as crucial to Davies' thinking: firstly, the incorporation of music and techniques borrowed from the medieval and renaissance periods, and secondly, the evolution of specific methods of transformation. There is a need for an identification of such elements within the music and for an evaluation of their contribution to the shaping of Davies' musical language.

The aim of the present study is to discover how these operate within certain larger works, and thereby to gain an understanding of the nature of Davies' compositional thought. Four works form specific areas for study: Prolation, Taverner, the Second Taverner Fantasia and the First Symphony. The intention is not an exhaustive analysis of each, but rather a revealing of the essential processes at work. A chronological sequence enables relevant developments to be traced. In addition, the two important elements are discussed separately with reference to a greater number of works. Borrowed techniques are illustrated by a comparison with music of the past, and transformation processes by the use of magic squares. Each is supported by an appendix.

It has become apparent from the study that, despite the variety of media within which Davies works, there are certain procedures applied consistently. These involve a fusing of borrowed elements with the composer's own transformation processes, and they play a significant role in the articulation of both local and large-scale structures. In particular, it has been found that a hierarchic system based on the dominance of a transforming cantus firmus is increasingly evident up to the time of the First Symphony.

INTRODUCTION

The task of studying the works of a living composer is both exciting and frustrating. Exciting, because there exists a present and a future in the mind of the composer, and something of his ideology and creative energy can be communicated at first hand. Frustrating, because, especially with a composer as prolific as Peter Maxwell Davies, the music continues to flow unstemmed, each new work unfolding a wealth of new ideas and demanding analytical attention. Although such potential forbids an examination that could be called in any way complete or definitive, the existing works of Davies are of sufficient interest to warrant intensive study in their own right.

Until 1982, published writings on Davies were limited to articles and critical reviews concerned with specific works, or with the composer's own attitudes and beliefs. Among these, the work of two writers stands out as especially valuable. Stephen Pruslin, keyboard player with the Fires of London, has written on Taverner and the Second Taverner Fantasia, for example, as well as on the relationships between works.[1] David Roberts has written extensively on the subject of the magic square, notably regarding Ave Maris Stella and A Mirror of Whitening Light.[2]

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1. Articles in issues of Tempo.
2. Articles in issues of Contact.

Then in February 1982 the first full-length book on Davies, by Paul Griffiths, was published.[1] As well as containing biographical details, an interview transcription and the composer's own programme notes, it is a useful general introduction to Davies' work. Its three 'interludes', which focus on the String Quartet, Antechrist and Ave Maris Stella, provide a much-needed probing beyond surface detail.

So far Davies' techniques, especially in large-scale works, have not been examined in great depth in relation to his whole creative outlook. Part of the difficulty has been one of terminology. The composer himself identifies this problem when he says that in his sonata forms

> ...any development consists of transformation processes. These processes are various, and precisely definable according to their position and function in the overall scheme - but as yet there is no common vocabulary to describe such processes, nor to describe the harmonic processes unifying the transformations.[2]

What are these transformation processes, and what is transformed? If 'any development' consists of such workings, they must certainly be crucial to the construction of large musical events. Furthermore, if they are 'precisely definable', any analysis of these events must attempt such a definition.

Both parts of the question are best approached with an awareness of Davies' personal attitudes and preoccupations. The art forms and cultures of the medieval and renaissance periods, for instance, are so much a part

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1. Robson Books, 1982.
2. 'Symphony'. Tempo 124, 1978, p.3.

of his creative thought that there is much value in studying them in tandem with transformation processes. Indeed, the interdependence of medieval techniques and these transformations demands such an approach.

Davies' scorn for the English musical tradition into which he was born in favour of that of his more ancient predecessors has been consistent, although perhaps expressed with more vehemence in his early composing years. One of his most vigorous campaigns has been on behalf of analysis, which should, he says, occupy far more of a student composer's time:

> His technique should come from exhaustive analysis of not only the greatest composers, but as many of the others as he can manage. [1]

Although Davies' own work betrays a formidable knowledge of the whole spectrum of Western music (and indeed of some of the music of the East), his particular sympathies lie with the medieval period - not only with the music, but with the whole ethic including philosophical and religious attitudes. Borrowed plainsong is more than a source of raw material with which to work: it is richly symbolic and allusive, with meanings open to endless different interpretations, whether overt, hidden, ironic or emotive. The composer sees no conflict between the contexts in which such material appears, saying:

> What one draws on for spiritual nourishment gets absorbed into one's own personality, and the personality transforms the material and illuminates it with new meaning. [2]

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1. The Score, March 1956, p. 85.
2. Quoted in Schafer: British Composers in Interview, 1963, p. 174.

Similarly, a technique such as mensural canon is more than a way of organising pitches in time - it suggests different ways of viewing the same object on many levels.

Davies' medievalism is about practical ways of tackling compositional problems, but more fundamentally it is about provoking thought; about an intellectual as well as an emotional response on the part of the listener. This response in terms of borrowed music and techniques has two aspects: firstly, it is a response to the elements of the borrowed material in isolation, and secondly, it is a response to the implications of the context in which it is used. On hearing the foxtrots in Vesalii Icones, or the extract from Messiah in Eight Songs for a Mad King, we experience these two aspects in conflict. Such discord is exactly what Davies wishes to achieve when he juxtaposes old and new elements, for it raises questions about the nature of reality, about things not being as they seem, and about the function of humour - subjects of abiding fascination and relevance to the present day.

The starting point of a work for Davies is usually a piece of music of symbolic significance - either sacred or secular - from the past. This is his 'spiritual nourishment' which is then subjected to processes of transformation. The degree to which material is transformed pre-compositionally is directly related to its aural perception during the work.

But what actually happens to this material? It is treated as a set of pitches which are usually, but not necessarily, all different. There may be twelve, but

sets of between five and eight notes are more common. Davies explains that

> Sets are chosen for much the same musical reasons as in normal post Schoenberg American set-theory except that they would be classified rather like Swammerdam's categories of insects - for the metamorphoses they are capable of undergoing rather than for their structural potentialities through direct transposition.[1]

Such a distinction is an interesting one. We may ask what it is about Davies' sets that makes them so suitable for metamorphosis, or transformation. The analyses in this study go some way towards an answer by examining the characteristics of this source material in relation to how it is treated, although there is room here for further investigation.

One of the most common methods of treatment is by systematic expansion or contraction of interval or duration. Using this method, a set may gradually become its own inversion, or a completely new set. Such number workings are common in Davies' works of the sixties, as will be shown in Sinfonia, Taverner and the Second Taverner Fantasia. They may happen on a local level, or over long periods of time. The balance between quoted, static material and transforming, mobile material is of vital importance, especially to the experience of the passing of time. It also fosters the conflicting response described above. Davies says that

> When such a transformation process is projected against pre-existing musical 'raw material', it can produce very interesting results, the raw material being sometimes filtered through the set process, sometimes colliding, as it were, head-on.....[2]

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1. 'Sets or Series'. The Listener, 22 Feb. 1968, p. 250.
2. Ibid.

The formulation of a magic square system to organise elements of pitch and duration marks a shift in the nature and effect of Davies' transformation processes. It happens with works from 1975 onwards, beginning with Ave Maris Stella in that year. Although the construction of the squares themselves has received considerable attention from other writers, we are able in the present study to make observations about their harmonic function within a work, particularly in relation to tonality, and their bearing on the construction of a work.

The search for the identity of source material and the method of its transformation is fruitful in itself. We are able to isolate different processes and to observe their interaction with techniques from the past. But such findings make possible an approach to an understanding of Davies' work beyond the methodological. In the chapters which follow, the techniques described are not viewed as ends in themselves, nor is there an attempt to scrutinize any piece for every process at work; the intention is rather to show by reference to selected works the diverse elements which make up Davies' creative persona.

The music discussed has been chosen because of its length, and its significance in Davies' output. The processes described are generally fairly extended, enabling an evaluation to be made of events occurring on various levels of time. Apart from the opera Taverner, music-theatre works have been largely ignored. They are a very important section of Davies' oeuvre, and worthy of a separate investigation, but are not ideal representations of compositional technique for our present

purpose. *Taverner* itself is included by virtue of its relationship with the *Second Taverner Fantasia*, its important combination of dramatic and musical transformation processes, and the importance to Davies of the composer John Taverner.

There will be much written about Peter Maxwell Davies in future years. Although the present study permits various conclusions to be reached and inferences to be made, it also opens up new fields for investigation into the artistry of one the great creative figures of our time.

CHAPTER I

BORROWED TECHNIQUES

Davies' preoccupation with music from the medieval and renaissance periods has been evident throughout his career. Specific borrowings, usually plainsong, have formed the basis of new works, and whole pieces have been the subject of arrangements, realisations and fantasias. Beyond such tangible evidence of a debt to the past, however, lie borrowed techniques and devices which have, in addition to their roles in parody and quotation, become a fundamental part of Davies' compositional thought.

Two particular works from the past have influenced Davies significantly: Monteverdi's Vespers and Dunstable's motet Veni Sancte Spiritus. A discussion of their relationship to specific works of Davies follows which will highlight some of these borrowed techniques. Then the wider application of such techniques in other works will be considered.

Davies became closely involved with the Monteverdi Vespers while teaching at Cirencester in the early sixties. His attraction to the work and intimate knowledge of it affected his own compositional thought at the time and gave rise to three particular works, whose form and content display a direct relationship to the Monteverdi: String Quartet (1961), Leopardi Fragments (1961) and Sinfonia (1962). There is in these pieces no actual musical borrowing from the older work; rather, certain elements of the structural design and technical

workings are imitated. Although so early in Davies' output, the three works display a considerable facility in the combination of early techniques with more recent processes such as serialism - an important factor in the shaping of Davies' own musical language.

As well as having its roots in the Vespers, the Sinfonia is one of the first 'serious' works of Davies to reflect the considerable impact upon him of writing for children. The need in such music for simplicity and straightforwardness had already given rise to works with clear lines and simple devices like O Magnum Mysterium (1960), Te Lucis Ante Terminum (1961) and Five Klee Pictures (1959, revised 1976). Now the appropriateness of such techniques as verse-refrain form, instrumental ritornelli and long cantus notes became apparent elsewhere. Davies uses these Monteverdi-based techniques in in more complex works like the Sinfonia.

The relationship of the opening movement of the Vespers to the opening movement of the Sinfonia is clear. After an initial recitando (instrumentally in the Davies), a series of chords is stated, each chord separated by a ritornello. A structural comparison is shown in Example 1.1. The framework of the two movements is the same, although the harmonic scope of the Sinfonia extends beyond that of the Vespers. Davies uses four different chords instead of Monteverdi's one, and juxtaposes all four at the end as a cadential gesture. Monteverdi's solution is different: the final alleluia activates the rhythmic,

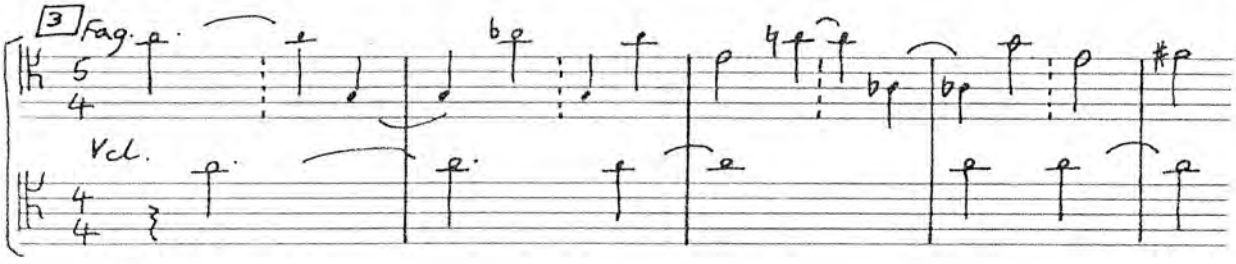
MONTEVERDI Vespers No. 1	DAVIES Sinfonia Movement 1
Vocal Recitando	Clarinet Recitando
CHOIR: Syllabic setting on D major chord	STRINGS: First chord Fig. 1
Instrumental Ritornello	Wind Ritornello Fig. 2
CHOIR: Syllabic setting on D major chord Fig. A[1]	STRINGS: Second chord Fig. 3
Instrumental Ritornello	Wind Ritornello Fig. 5
CHOIR: Syllabic setting on D major chord Fig. B	STRINGS: Third chord
	Wind Ritornello Fig. 7
	STRINGS: Fourth chord Fig. 8
	Wind Ritornello Fig. 10
Cadence (alleluia): move away from D major chord. Fig. C	Cadence: all four chords. Fig. 11

EXAMPLE 1.1 Monteverdi: Vespers No. 1 and Davies: Sinfonia, Movement 1. Comparison of structure.

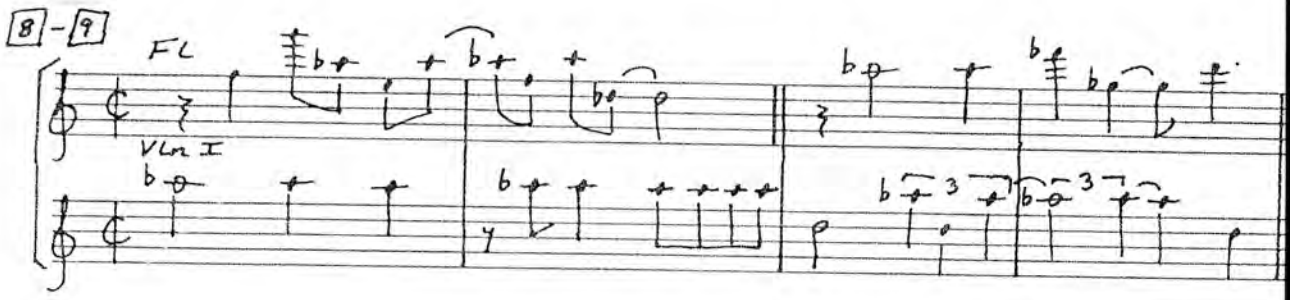
1. Philharmonia edition.

harmonic and textural stasis of the choral writing up to that point, releasing the tension of the ever-present D major chord.

Besides the connection between surface forms, there are other more subtle parallels, some of which serve as points of departure for Davies away from imitation into his own original workings. Firstly there is the use of melisma, not only as decoration of a line, but as a viable structural force due to its capacity for increasing or decreasing the number of articulations within a musical event (such as a cantus note). In the opening movement of the Vespers, each instrumental accompaniment to the choral music is more elaborate than the last: there are progressively more notes and more ornamentations. A similar process occurs in the Sinfonia. Compare the relatively static decoration of the cello's 'A' at Figure 3 with the rhythmic and intervallic activity at Figure 8/9 (Examples 1.2 and 1.3).

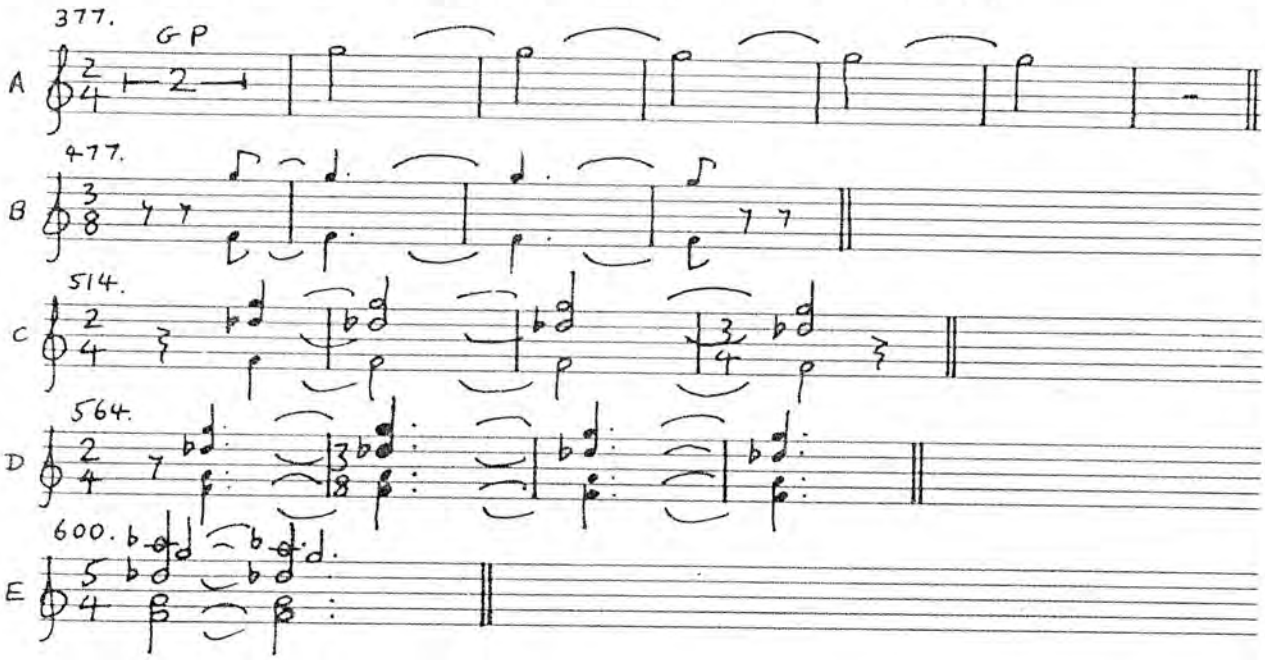


EXAMPLE 1.2 Sinfonia, Fig. 3, bassoon and cello.



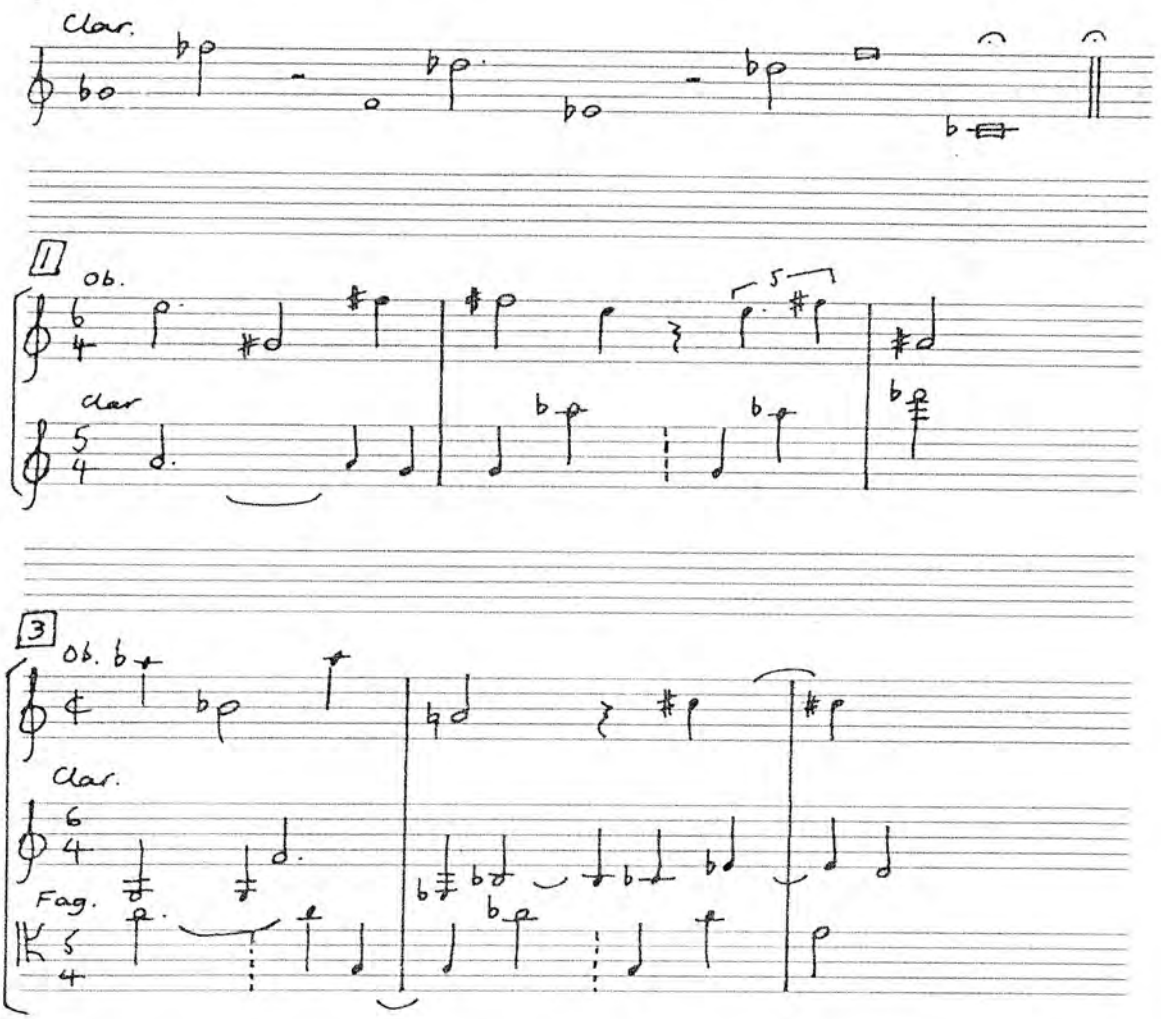
EXAMPLE 1.3 Sinfonia, Fig. 8/9, flute and violin I.

Secondly, as a direct offshoot of this, Davies explores the possibility of progressively increasing the density of texture. The wind parts in the first movement of the Sinfonia operate within a strict system of gradual solidification: one instrument more joins after each ritornello, and, when playing with the strings, each adopts a different time signature. On a simpler level Davies had used this technique previously in Prolation (1958). In the final area of Prolation, five subsections are each preceded by a chordal announcement of their respective tonal centres, the new note being added to the previous ones to achieve a progressive density:



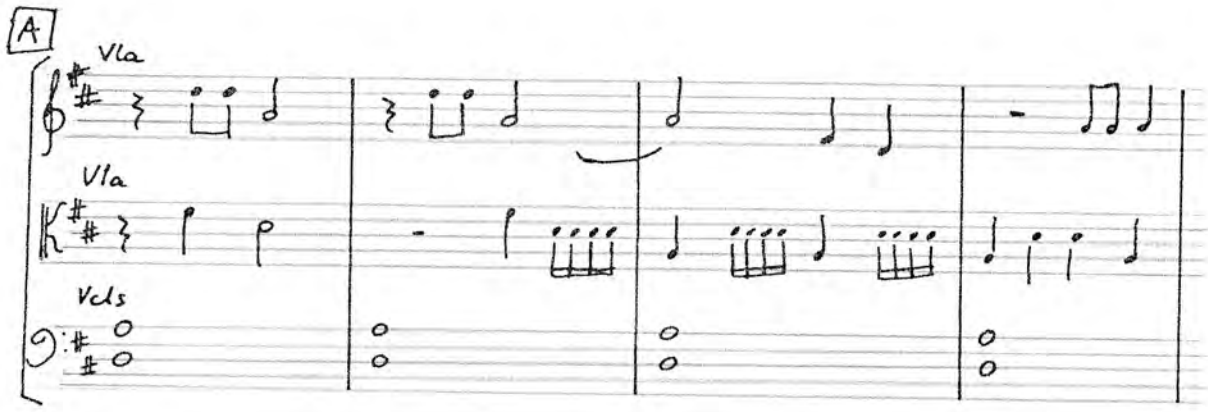
EXAMPLE 1.4 Prolation, final area.

This may be compared with these wind parts in the Sinfonia:



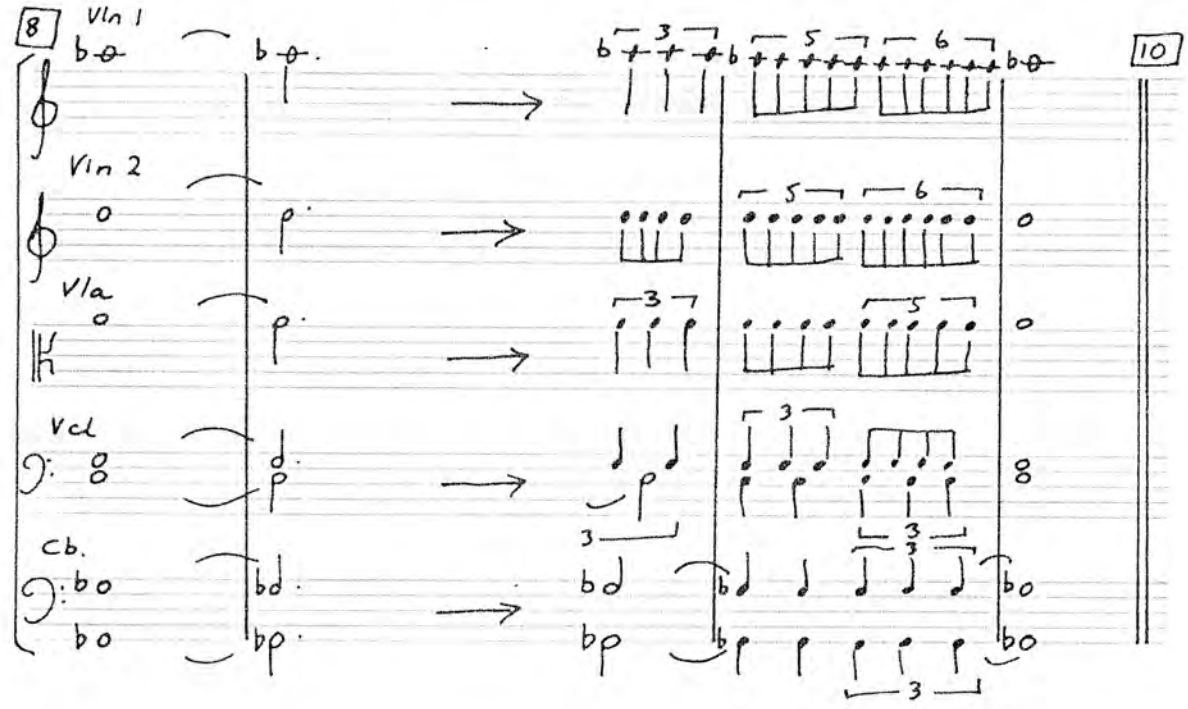
EXAMPLE 1.5 Sinfonia, First Movement - progressive density in wind parts.

A third instance of a technique operating on a simple level in the Vespers which Davies uses with increased sophistication is that of multiple articulations within one harmony. The declamation of the text in the Vespers naturally calls for this, being all on one chord, and it is also present in the instrumental parts:



EXAMPLE 1.6 Vespers, No. 1, Fig. A (lower strings).

Moreover, there is much crossing of parts in the Monteverdi, by which means texture is heard as a variable factor in an otherwise static situation. The statement of the fourth chord in the Sinfonia is built on an identical principle. Its beginning and end, shown in Example 1.7, are two extremes of stasis and activity. The intervening bars, not shown, move gradually from one to the other:



EXAMPLE 1.7 Sinfonia, Figures 8-10 (strings).

In his discussion of texture as a structural function, Wallace Berry identifies the above procedure as

> ...activation by displacement of pitches within a subtextural context.[1]

Such techniques owe much to Stravinsky as well as to Monteverdi. A useful comparison may be made between Example 1.7 and the opening of Canticum Sacrum, fifth movement.

The relationship between the Vespers and the Sinfonia may be seen throughout the two works, but just one more parallel will be cited here. The third movement of the Sinfonia is, Davies claims, based on the 'Sonata Sopra Sancta Maria' of the Monteverdi work (which also lends structural ideas to the String Quartet). One of the most important aspects of the 'Sonata' is its isorhythmic design: a single cantus line is repeated ten times, independent of metric or other changes in the instrumental parts. So 'double bar-lines' occur in different places for different lines, as shown in Example 1.8. Each time the cantus returns in the voice, with its unchanging pitch sequence, or color, the rhythm is slightly altered. It is in a constant state of transformation, and meanwhile other isorhythmic processes happen in the instrumental parts. Likewise in the Sinfonia, cantus lines are independent; beginnings and endings overlap: (Example 1.9)

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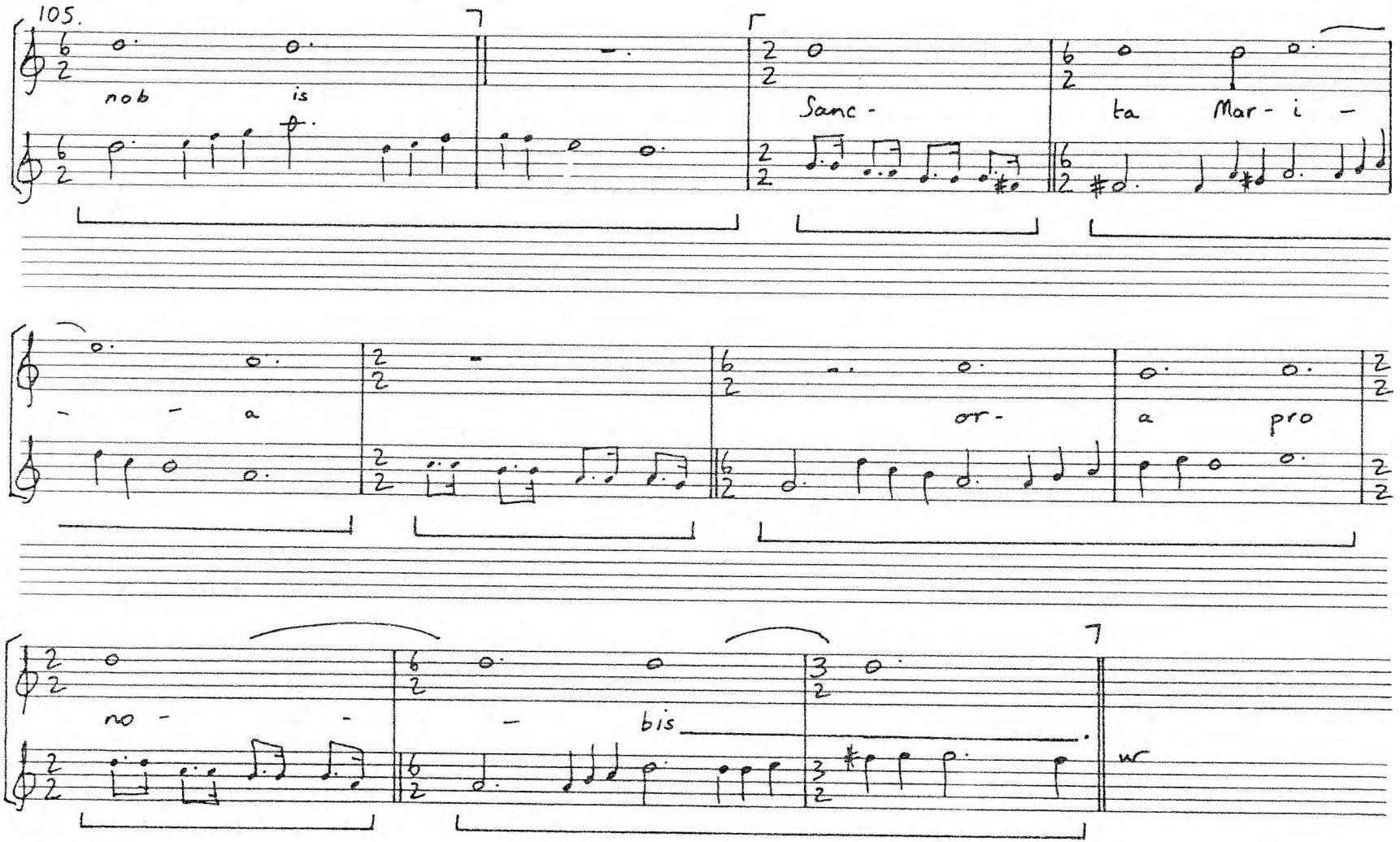
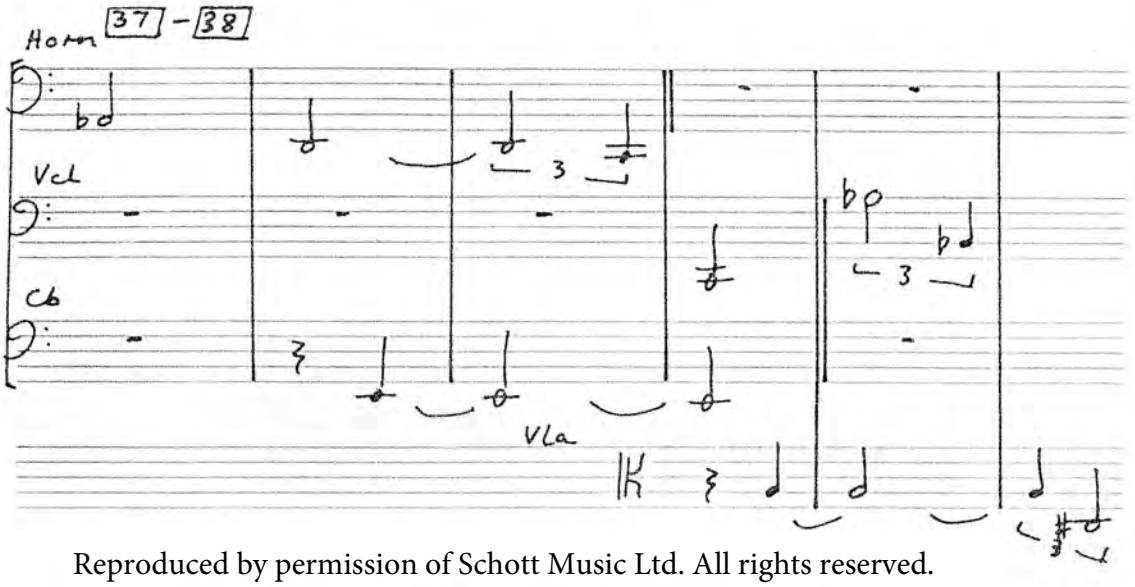
1. Structural Functions in Music, New Jersey, 1976, p. 230.

(my double bar-lines)



EXAMPLE 1.8 Vespers, No. 11, bars 105-115 - isorhythmic design.



EXAMPLE 1.9 Sinfonia, Figures 37-38.

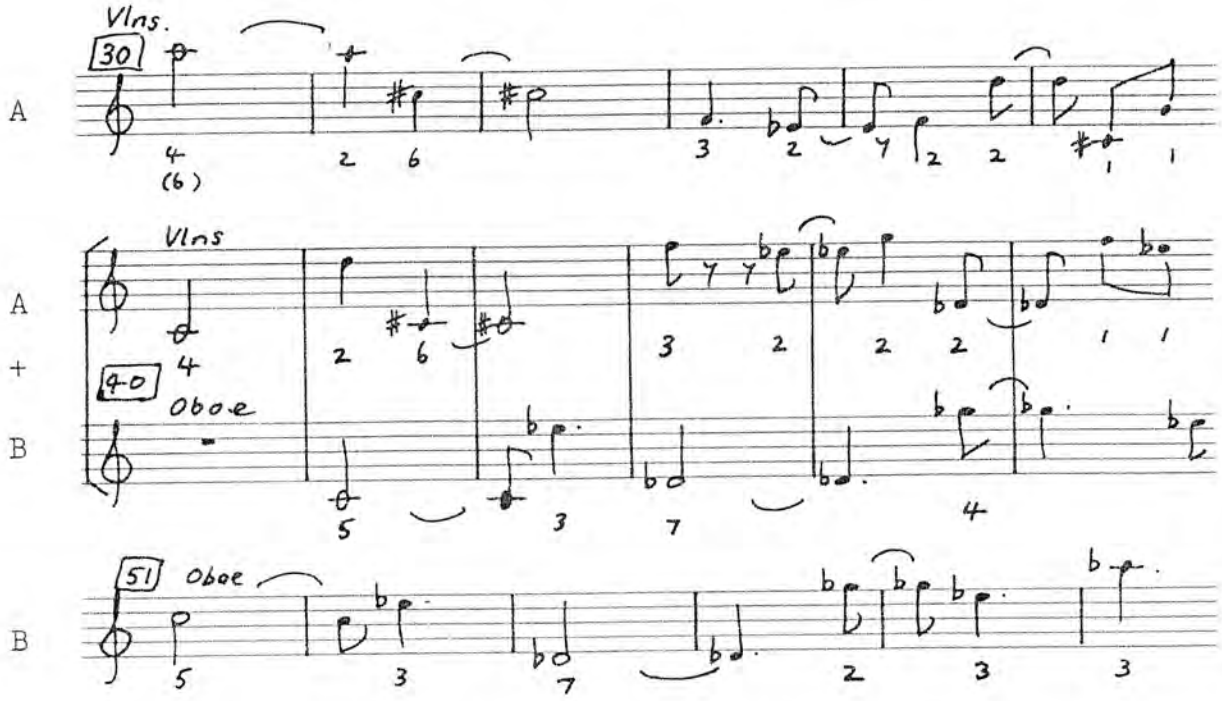
These lines undergo transformation in a more ordered way than those of the Monteverdi. In the third movement of the Sinfonia there is a simple example of gradual expansion and contraction of interval and duration throughout the movement. It falls into a clear sonata form:

Exposition	First Subject - strings	Figure 1
	Second Subject - strings + horn	34
Development	First Subject - strings + wind	40
	Second Subject - strings + wind	45
Recapitulation	First Subject - wind	51
	Second Subject - wind + strings	54

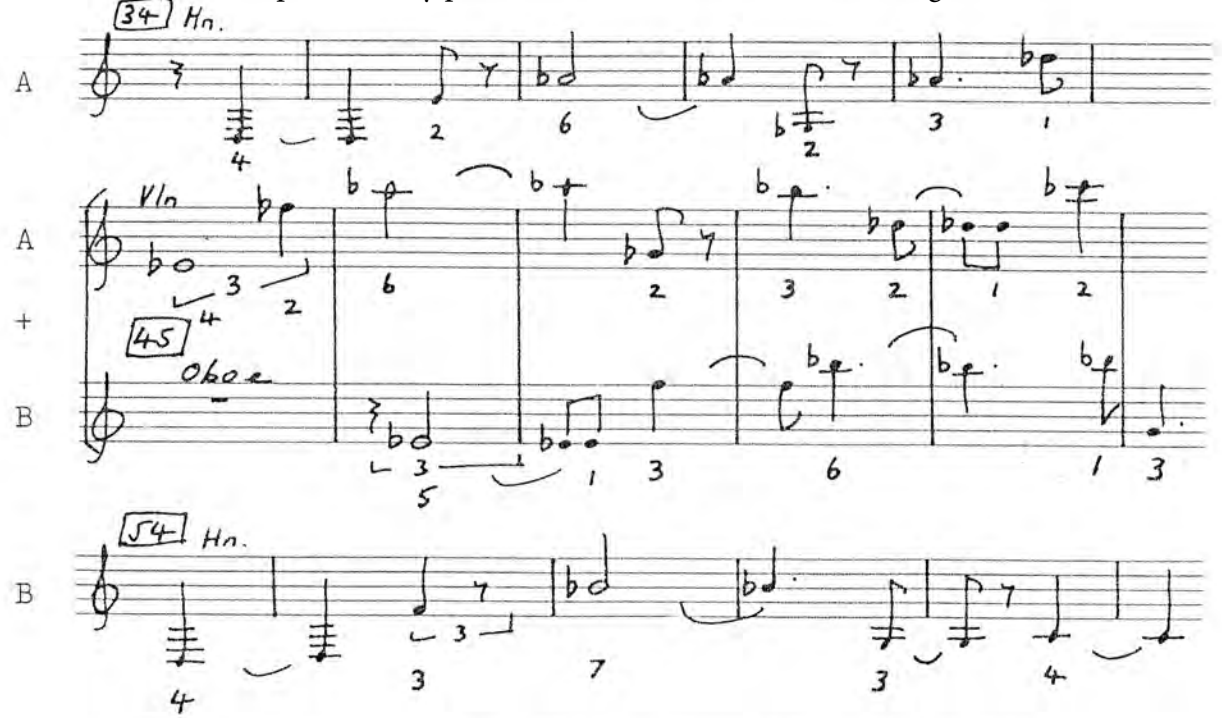
As with Davies' later sonata forms, the function of the development is to subject the initial material to processes of transformation. Here the process is

Exposition	Development	Recapitulation
A	A+B	B

In the development the new material grows out of the old by a combination of the two, before the new is released fully-fledged in the recapitulation. Example 1.10.1 shows the expansion of duration in the first subject, and Example 1.10.2 shows the same process in the second subject.



EXAMPLE 1.10.1 Sinfonia - expansion of duration.



EXAMPLE 1.10.2 Sinfonia - expansion of duration.

Such procedures become increasingly common in Davies' music, as will be seen later in the Taverner works.

Davies' association with the works of John Dunstable is of a different nature from that with the Monteverdi Vespers. Davies wrote his own Veni Sancte Spiritus for voices and small orchestra in 1963, but apart from the textual connection there is no obvious relationship between the settings of the two composers. The Davies work shows more directly the influence of the Monteverdi work already discussed. In it are contained numerous examples of the techniques mentioned above, such as ritornello structure. Instrumental ritornelli are used to separate the verses of the text. Also evident is the progressive intensification of recurrent events, similar to the process illustrated in Examples 1.4 and 1.5.[1]

Despite the value of Davies' Veni Sancte Spiritus for study in itself, we are concerned here with matters more relevant to the links between Davies and Dunstable: namely, the relationship between Dunstable's motet Veni Sancte Spiritus and Davies' realisation-fantasia Veni Sancte - Veni Creator Spiritus (1972). In the latter work a straightforward realisation for the 'Fires of London' instrumentation is followed by an original fantasia.

The proportional structure of the Dunstable work undoubtedly interested Davies when writing his own fantasia upon it. The earlier piece is organised in three sections,

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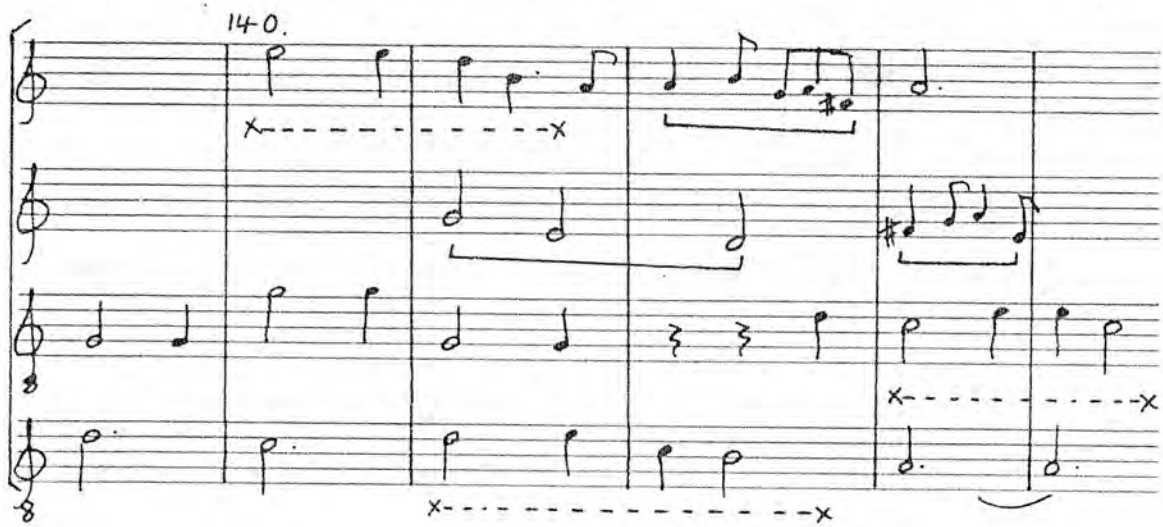
1. See Figures U, V and W.

the lengths of which fall into the ratios 3:2:1. Davies was already familiar with such workings, which operate with mathematical precision in Prolation. The Davies/Dunstable fantasia uses ordered ratios between tempi:

Opening	C	D	G	N	O	R
♩ = 80	𝅗𝅥 = 80	♩= 100	𝅗𝅥= 50	𝅗𝅥𝅮𝅗𝅥𝅮 = 80	𝅘𝅥𝅮= 100	♩= 50
1:2	8:5	↔	↔	2:1	↔	

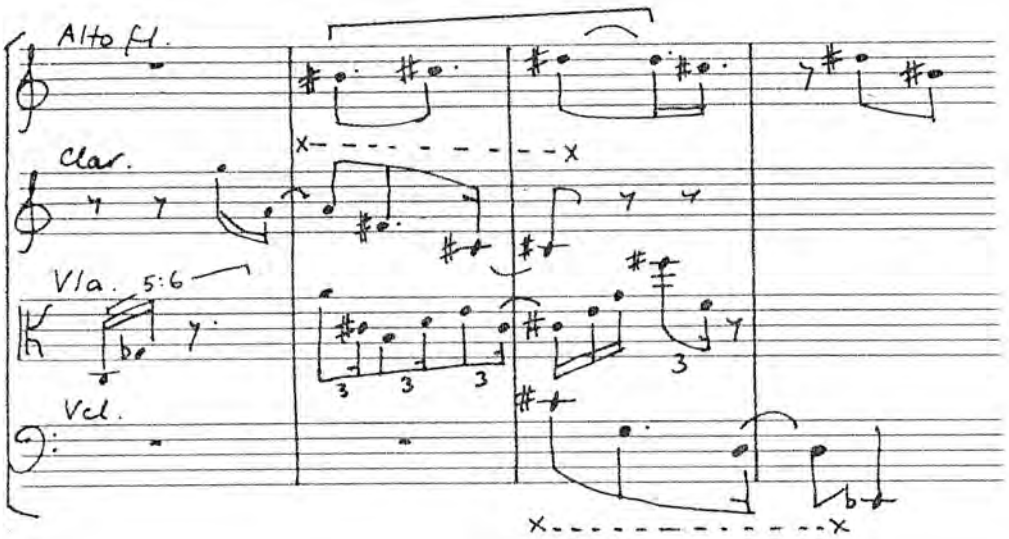
EXAMPLE 1.11 Davies: Veni Creator Spiritus. Relationships between tempi.

However, the piece's improvisatory nature and the independence of rhythm from metre override any sense or ordering that these ratios might impose. Davies plays on the ambiguity of moves between duple and triple metre in the Dunstable lines. Small rhythmic motives are abstracted in isolation and their scope widened into typically complex groupings. Example 1.12 shows these features in the latter part of the Dunstable. Brackets emphasise the change from 3/4 to 6/8, and rhythmic imitations are marked x------x.



EXAMPLE 1.12 Dunstable: Veni Sancte Spiritus, bars 139 - 144.

The important hemiola in bars 141 - 142 proves ideal for exploitation by Davies in his fantasia, and he combines it with a free expansion of the triplet idea, introducing rhythmic canons of his own:



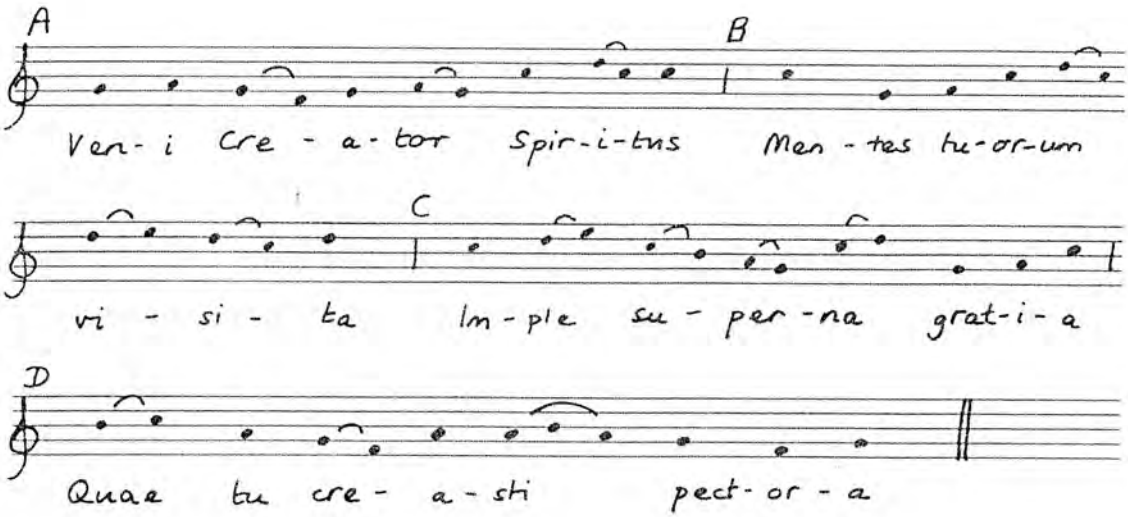
EXAMPLE 1.13 Davies: Veni Creator Spiritus, p. 17.

At such times the music seems dangerously close to erupting into a foxtrot, but here Davies is more restrained than, for example, in the realisation of Purcell's Fantasia and Two Pavans (1968).

The practice of combining literal borrowed music with free variation upon it is itself a borrowed technique. The Dunstable is an excellent example of this: rare in that a straightforward rendering of the borrowed plainsong is alternated with a freer paraphrase of the same in the superius, or treble part. The paraphrase is in shorter note values and contains some added pitches.

An important principle is at work here: the cantus as conveyor of different levels of time. The plainsong

melody falls into four phrases, which may be called A, B, C and D:



EXAMPLE 1.14.1 Plainsong Veni Creator Spiritus.

These are stated alternately by superius and tenor as follows:

SUPERIUS	A		B			C		D			A		B						
TENOR		B		C			B		C			B		C					
					3:2				2:1										

EXAMPLE 1.14.2 Plainsong statements in the Dunstable.

While the paraphrase cantus moves swiftly through each phrase of the melody in the superius, the tenor's long notes oscillate between the second and third phrases. The tenor is fulfilling its familiar role as a 'scaffolding'[1] - textually less important (phrases even begin halfway through

1. E.H. Sparks: Cantus Firmus in Mass and Motet 1420-1520 Berkeley and Los Angeles, 1963, p. 109.

a word), and unifying the three isorhythmic sections. Meanwhile the motion and textual continuity is provided by the upper line. The listener is required to use memory to link temporally separated events, and is presented with more than one way to experience the passing of musical time.

Such a compositional mentality is entirely at one with Davies' own. A close parallel to the process described above may be seen in the Second Taverner Fantasia,[1] and other examples of time distortion are numerous.

In Davies' fantasia Veni Creator Spiritus fragments of the original, in various stages of dismemberment, emerge spectre-like through the new music at various points. One is not sure what progress, if any, is being made in time or space. This is worthy of a more detailed examination.

After a few disjointed attempts (similar to the 'settling down' music at the beginning of St Thomas' Wake), a recognisable rendering of the Dunstable begins at Figure B. This is quickly stifled at Figure C by cello glissandi. Until Figure G the music is impulsive, expanding into a fantasia and seemingly away from Dunstable, but at G there is a sudden return to the opening talea, with new pitches, in a grotesque passage played 'ppp' by viola and cello. This may be construed as an extension of the isorhythmic nature of the piece: a new color applied to an existing talea.

Again at J borrowed music emerges: this time both pitch and rhythm of the Dunstable superius at bars 19 - 21. Time is compressed by combining this music with an almost

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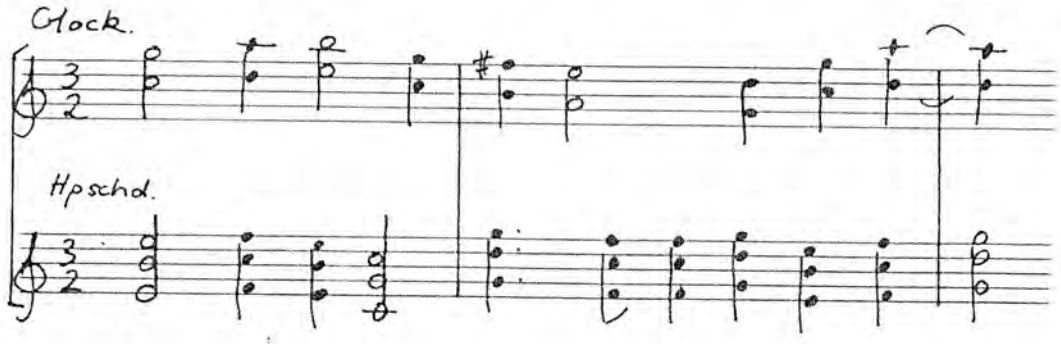
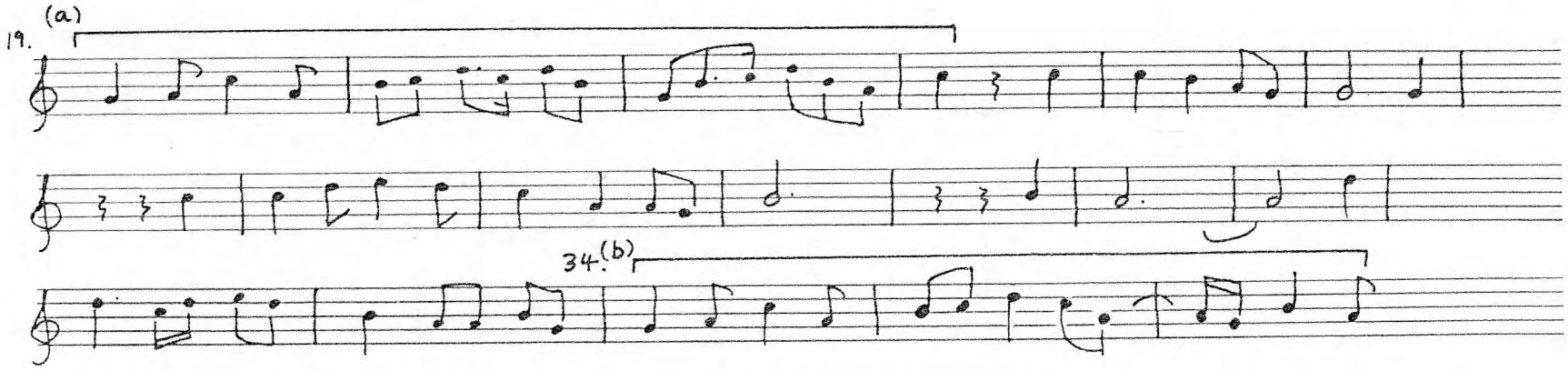
1. See bars 627 - 718.

identical passage from bars 34 - 36 of the Dunstable (see examples 1.15.1 and 1.15.2). Simultaneously, time is moving slowly: after half the fantasia the listener still hears extracts from the first few lines of the Dunstable with the new music.

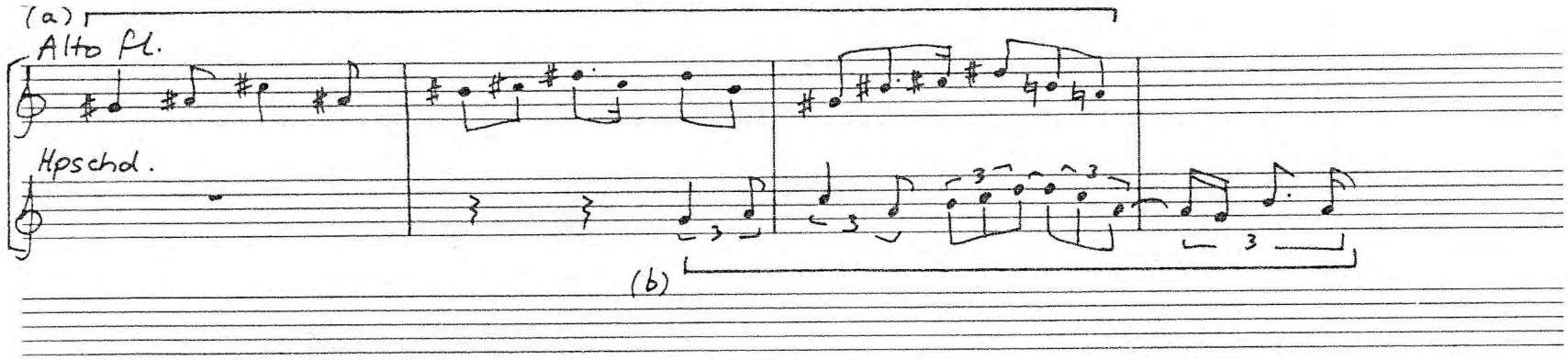
Davies clearly knew the Dunstable work well and learnt much from it. However, one instance of a borrowed technique in his own piece has its roots in even earlier music. Organum-like movement in parallel fifths is Davies' only departure from the original in the realisation which precedes the fantasia. In the duet for glockenspiel and harpsichord which opens the second section, both parts have added fifths. The resultant dissonance gives a Davies-tinged edge to the motet, perhaps as a foretaste of what is to come in the fantasia:



EXAMPLE 1.16 Davies: Veni Sancte Spiritus realisation, p. 4 - glockenspiel and harpsichord.



EXAMPLE 1.15.1 Dunstable: Veni Sancte Spiritus, bars 19 - 36.



EXAMPLE 1.15.2 Davies: Veni Creator Spiritus, p. 16.

The works discussed above highlight many techniques which are pertinent to Davies' whole output. Two such techniques, mensural canon and cantus firmus, are especially significant in the process of generating material.

Davies' use of canon is extensive and imaginative, and is applied in widely varied media. He will probably have studied masterpieces of canon like Josquin's Missa l'Homme Armé Sexti Toni and Ockeghem's Missa Prolationum, and he extends the mensural devices therein beyond duple and triple relationships.

In Seven In Nomine (1963-4), Davies' own 'In Nomines' are juxtaposed with realisations of those by Taverner, Bull and Blitheman. The fifth movement, 'Canon in Six Parts', is an excellent example of the use of a single idea to provide all material by the application of mensural canon. Example 1.17 shows the organisation of canonic voices in the movement.[1]

Mensural canon may be used to suggest the idea of time passing at different rates. Two passages of identical melody and rhythm played at different speeds give this effect. A common device used by Davies is to position the entry of each mensuration so that all voices end together. Thereby a sense of accumulated texture and speed is achieved towards the end of a passage. This is most clearly seen in the first movement of Ave Maris Stella (1975). The viola and piano both enter in canon with the cello cantus, the first diminished in value by 5 to 3, the second by 4 to 1 , as shown

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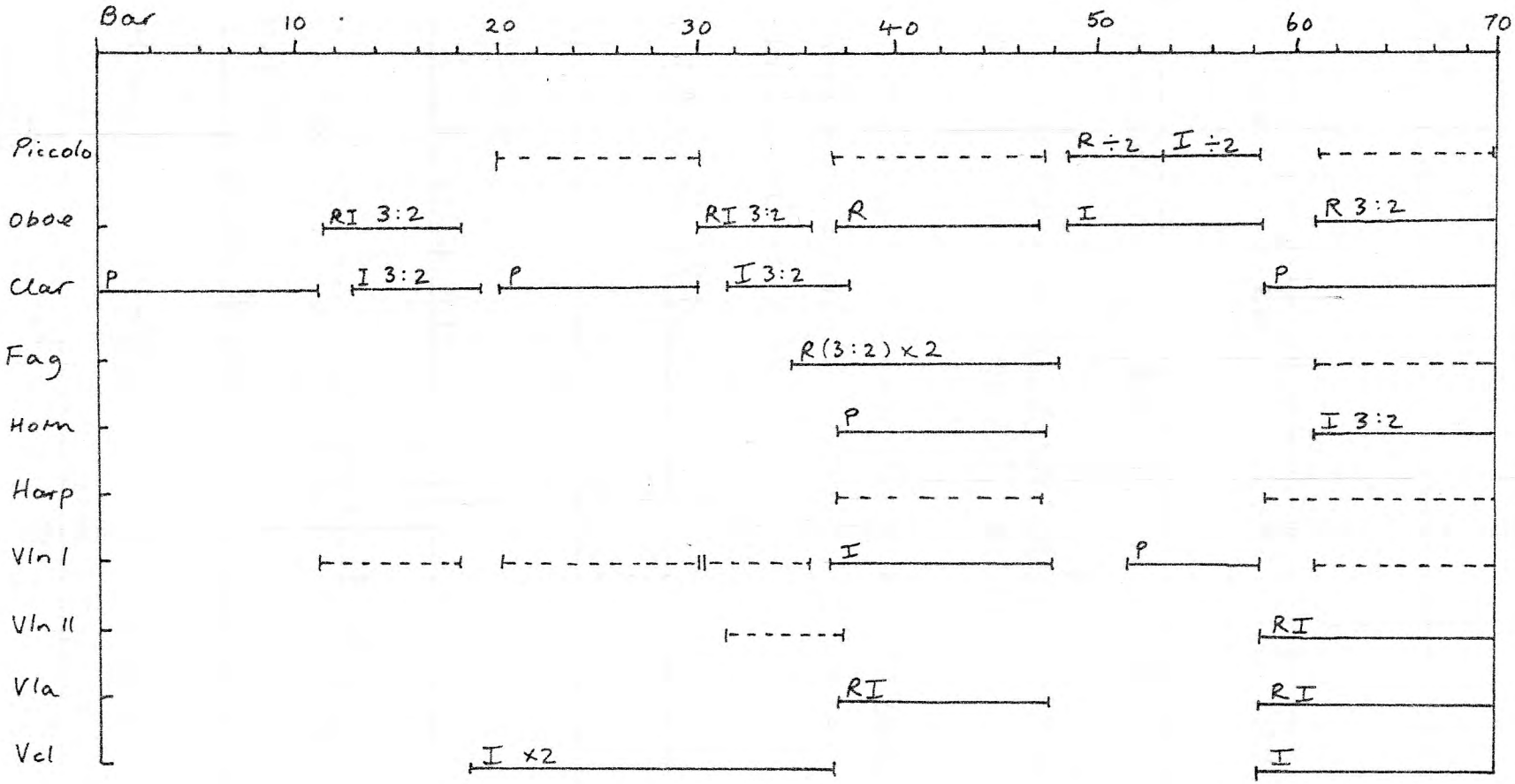
1. A similar process working with greater complexity may be seen in Taverner, I/3 (The Monks' Chorus).

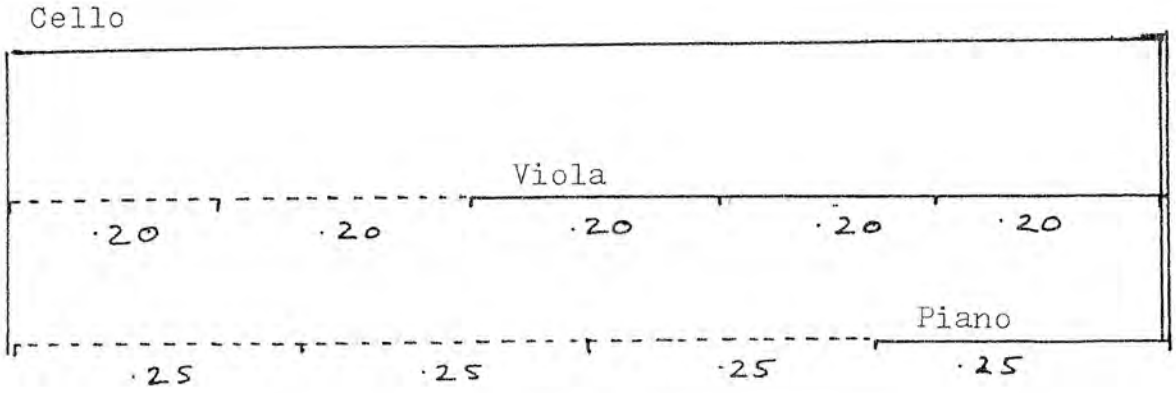


EXAMPLE 1.17

Seven In Nomine, No. 5 .

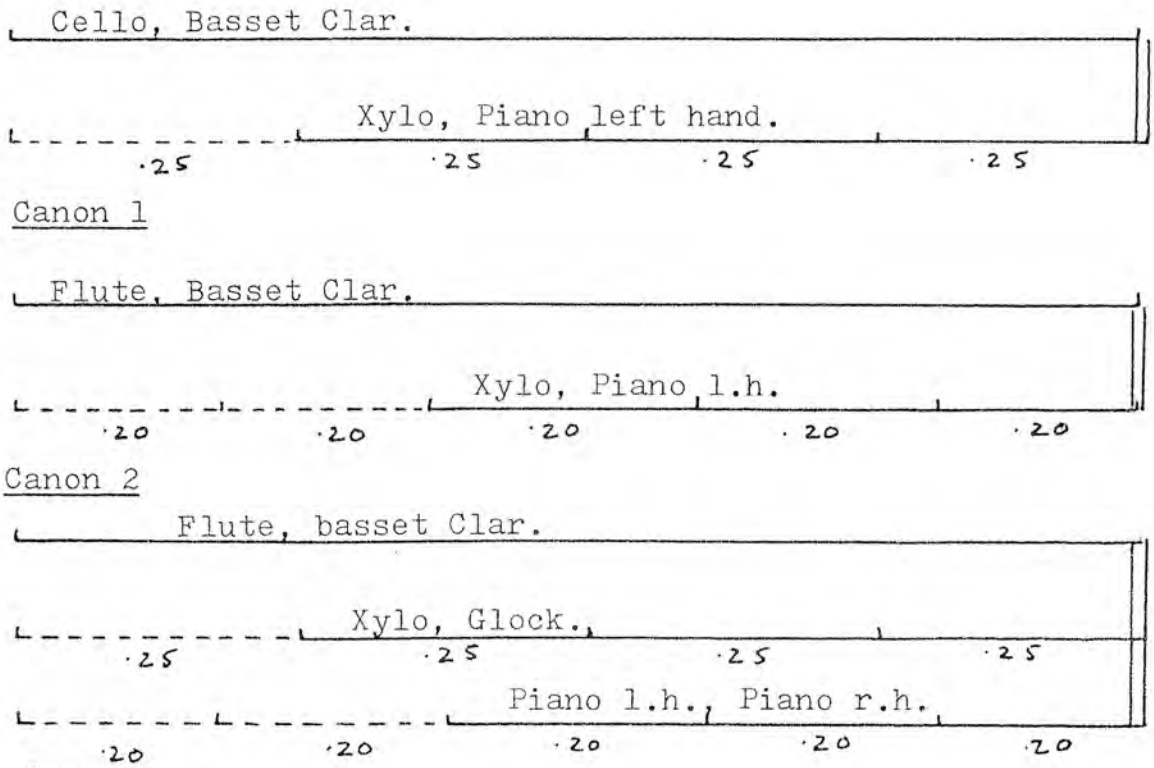
Canonic entries.

in Example 1.18:



EXAMPLE 1.18 Ave Maris Stella, first movement. Mensural canon.

Similarly, in the first movement of Vesalii Icones (1969), three short canons use proportions of 4 to 3, 5 to 3, and finally both at once:



EXAMPLE 1.19 Vesalii Icones, first movement. Canons.

A further example of a canon employing almost every possible manipulation of a single line may be seen in Ecce Manus Tradentis (1965) at bar 54.

Cantus firmus technique, like canon, is one of Davies' fundamental compositional tools. The works discussed above illustrate some aspects of this. In the Sinfonia, long notes articulate large harmonic areas, enclosing elaborate melismas; in the Dunstable-Davies fantasia two types of cantus - structural and melodic - are used as in the original and isorhythmically varied.

What exactly is cantus firmus in Davies' terms? In its broadest sense cantus firmus has been called

> Any pre-existent melody which is used as the basis for a new composition.[1]

Much of Davies' music uses such a melody, often plainsong but sometimes secular. However, the manner of its use - the cantus firmus technique - is more important to the piece as a whole, mainly because the melody is often instantly superseded by transformations of itself and loses identity. The technique has transcended plainsong and become a medium for all kinds of pitch material - sacred, secular, borrowed or original. The two sides to Davies' medieval borrowings are in fact separate: content (melody) and form (cantus firmus and other techniques).

One of the primary uses of cantus firmus technique, then,

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1. Sparks: op. cit., p. 1.

is to present important material. There are times when the melody has symbolic significance, as when it appears intact at an important moment. This happens in Ave Maris Stella when the plainsong is stated for the first time in its original form by the flute near the end [C2], and in Worldes Blis (1969) when the borrowed monody appears on bells near the end [Figure 81]. Quite often the pre-existing material is 'discovered' in this way rather than being announced at the beginning. Even in the early piece Alma Redemptoris Mater (1957), the plainsong remains clouded in fragmentations, inversions and other disguises until its clear statement by the oboe in the last movement. Davies' comments on this phenomenon in Worldes Blis may be taken to apply to many such pieces:

> The whole work may be heard as a quest for this (pre-existent) material, in one long gesture: from the opening duo for two harps - which is as far removed as possible from the modal monody, while ultimately being proved to be integrally related - through to this appearance on bells.[1]

At other times the melody is functional - the cantus technique putting it to work immediately in transformations, set or magic square permutations. The cantus operates either as a single instrumental line or as a migrant cantus. The latter, with notes shared between instruments, is a common feature of early works such as Prolation and the Second Taverner Fantasia (1964), where cantus notes are often linked by a dotted line in the score for the benefit of performer or analyst.

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1. Davies, quoted in Griffiths: op. cit., p. 151.

An interesting variation of this is the use of red notes in the score of the String Quartet. This is not to be confused with the medieval practice of using red notes to indicate change of duration.

The complexity of texture in the migrant cantus tends to obscure the progress of the cantus firmus, and it is noticeable that in later orchestral pieces like the First Symphony a cantus is usually presented on one instrument only over a period of time. One criticism frequently levelled at Davies is that important lines are not always as audible as they might be. Perhaps in the composer's defence the following comments on the cantus firmus of the medieval isorhythmic motet could be quoted:

> Because of the length of the talea and the long duration of its individual notes the structural basis of an isorhythmic tenor could seldom be heard; this was considered not to matter since, merely by being present, its mathematical virtue informed the whole piece. [1]

Being both structural and melodic in function, the cantus firmus contributes much to the articulation of events on different time scales. Prolation demonstrates clearly how events on many levels of time are governed by the same elements.

Just as the preparation of a cantus firmus and its employment in a structural and melodic capacity has been crucial in Davies' compositional method, so the practice of cantus decoration has extended the implications of the borrowed technique beyond the linear into the textural and chordal.

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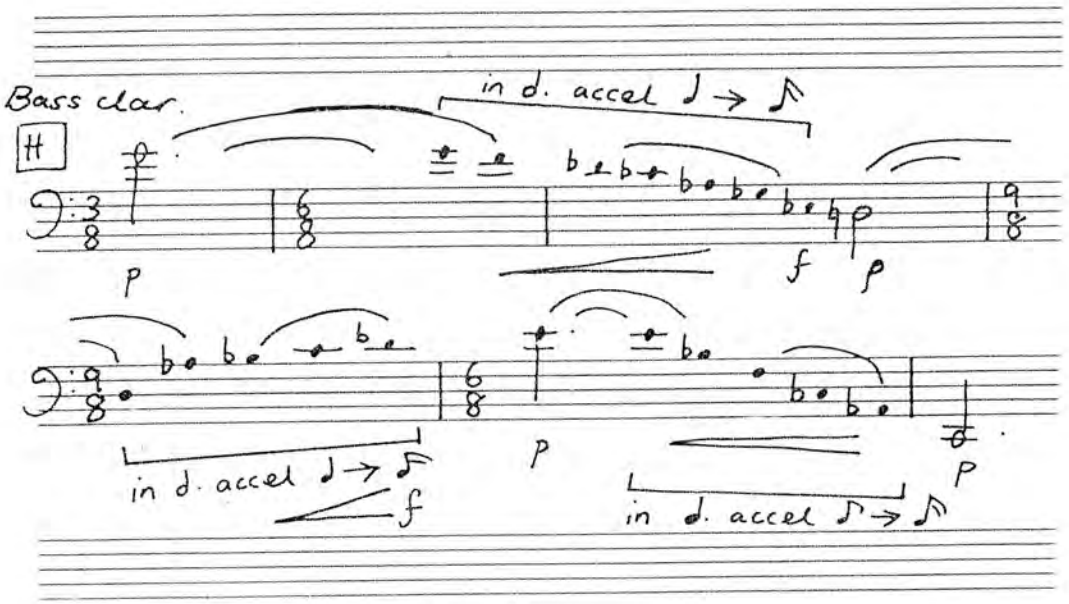
1. W.T. Marrocco and N. Sandon (eds.): Medieval Music, Oxford, 1977, p. 126.

In the Sinfonia it was shown how the slow-moving cantus notes of the strings were accompanied by increasingly florid wind decorations in the first movement (Examples 1.2 and 1.3). There are at least two different types of cantus decoration in Davies' music which have parallels in specific medieval practices:

(a) Decoration of the line itself as it progresses, as in the medieval practice of troping. Such decorations occur in Antechrist (1967). Each long cantus note played by the bass clarinet at Figure H finishes with a few added notes in free time, accelerando:



EXAMPLE 1.20 Antechrist, Figure H.
Cantus decoration.

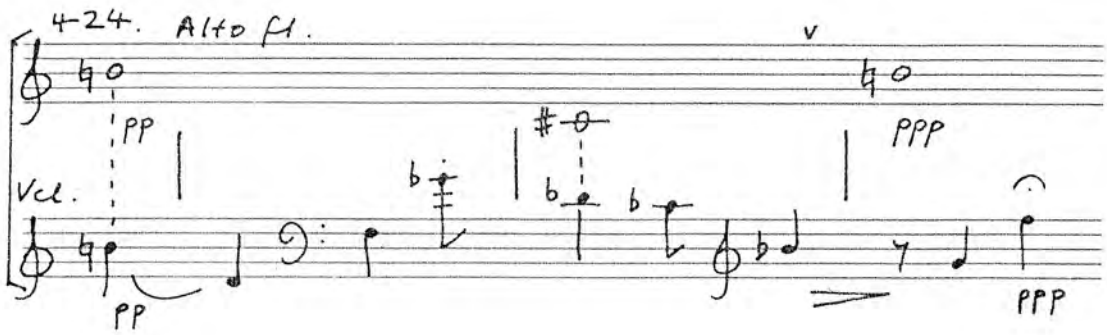
There is a certain improvisatory element within these elaborate medieval melismas which Davies has adopted; never, however, allowing total freedom (to him this would be evading responsibility), but growing from a firm root - the cantus note.

(b) More commonly, decoration of the cantus line by one or more other lines. This may be in parallel note against note style, as in the doubled fifth of the earliest organum, an example of which was noted in Davies' Dunstable realisation (Example 1.16).

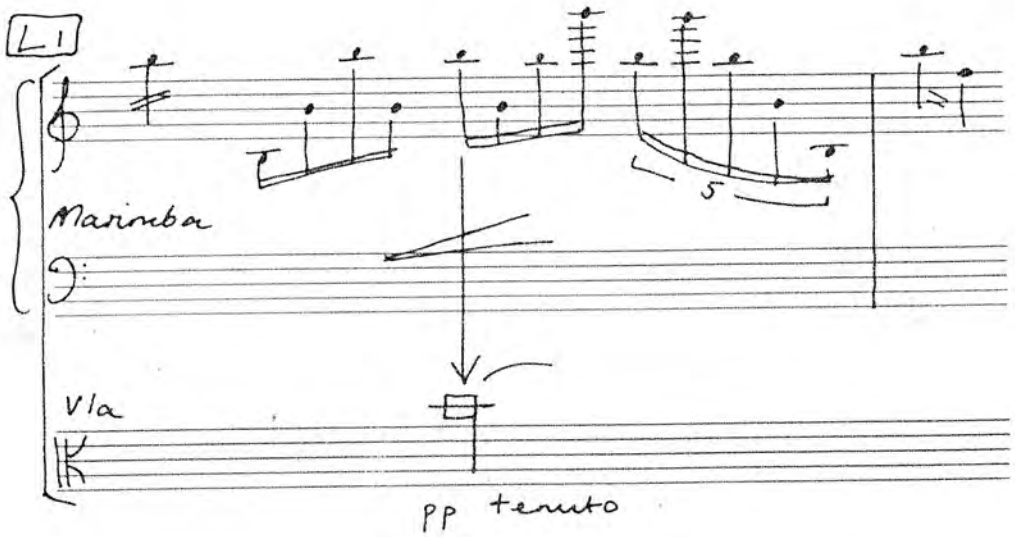
Such features are by no means restricted to shorter, more lightweight pieces or arrangements - they are used with ease in large-scale works as an integral part of Davies' technique. An example from the First Symphony may be cited, where the flute cantus is doubled in fifths at Figure 46 in the first movement.

This decoration may also be of a type similar to melismatic organum, where a second line is added containing more notes, faster moving, and with notes branching out from the main cantus. This medieval technique would appear to be the precedent for Davies' own characteristic florid added lines, which may be observed in the following examples. Examples 1.21.1 and 1.21.2 are from Vesalii Icones and Ave Maris Stella respectively. They both show long cantus notes together with lines of more rapid movement. In the first example, unisons simply occur as the added line coincides with a cantus note. In the second, however, the pitch of the cantus is dwelt upon in the added line and subjected

to rhythmic and registral elaboration.



EXAMPLE 1.21.1 Vesalii Icones, twelfth movement, bars 424-426.
Cantus decoration.



EXAMPLE 1.21.2 Ave Maris Stella, sixth movement, Figure L1.
Cantus decoration.

Davies' use of the past is so extensive that increased knowledge of the music renders terms like 'borrowed technique' and 'borrowed material' insufficiently specific. The distinctions made by Leonard B. Meyer between various ways of using the past[1] have been found useful in formulating a more definitive approach. These distinctions have the advantage of encompassing all manifestations of Davies' use of the past, including arrangement, stylistic imitation and formal modelling as well as use of plainsong and medieval techniques.

A paraphrase is a new version of a complete work, retaining thematic, structural and stylistic features, but introducing other changes which identify it as contemporary. These may be an altered rhythmic emphasis, a re-instrumentation in a modern idiom, or perhaps the use of a device that is peculiarly modern, like string glissandi. Paraphrase is distinct from simple arrangement. An arrangement, in Meyer's terms, is a new presentation of a work that is as faithful as possible to the original. Among Davies' numerous 'arrangements' few conform to this specification, but the following examples may be cited:

(a) Seven In Nomine No. 1 (Taverner)

(b) Seven In Nomine No. 4 (Bull)

(c) Five Voluntaries (1960).

These adhere fairly rigorously to the character of the past music. Examples of paraphrase, using added parts and

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1. Music, the Arts and Ideas, Chicago, 1967, pp. 185-208.

idiomatic instrumentation, are:

(a) Davies/Dunstable: Veni Sancte Spiritus

(b) Davies/Purcell: Fantasia and Two Pavans

(c) Seven In Nomine No. 6 (Blitheman)

(d) Antechrist, opening version of 13th century motet.[1]

In the case of borrowing, excerpts, more often than whole pieces, are taken as the basis for a new work. These may be in the form of parody,[2] quotation or initial source material, but they must play an important thematic or structural role. Examples of borrowing in Davies include:

(a) Davies/Dunstable: Veni Creator Spiritus

(b) Te Lucis Ante Terminum (borrowed plainsong)[1]

(c) Ave Maris Stella (borrowed plainsong)[1]

(d) Worldes Blis (borrowed secular song).[1]

Borrowing is distinct from allusion, where a passing reference is made to other music, and it is not significant in the overall structure. Allusions in Davies occur in the following:

(a) Vesalii Icones, Movement 8 (extract from Beethoven's Fifth Symphony)

(b) Eight Songs for a Mad King (1969) (extract from Handel's Messiah).

Simulation, according to Meyer, concerns the use of a past style, rather than actual music. The music is newly composed, but uses a stylistic medium from the past, often for ironic purposes.

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1. Sources detailed in Appendix A, below.

2. See definitions of parody, Chapter III, below.

Examples of simulation are:

(a) Taverner, Act II/2 (dances)

(b) Vesalii Icones (foxtrots)

(c) St Thomas Wake (foxtrots)

(d) Missa super l'homme armé (Victorian hymn).

Finally, in modelling, use is made not of the style or content of a past work, but of its syntax or function. In Meyer's terms an 'analogue' of the past work is made. For example:

(a) Sinfonia (modelled on Monteverdi's Vespers)

(b) First Symphony, second movement (modelled on Sibelius' Fifth Symphony).

CHAPTER II

PROLATION

Written in 1958, Prolation is Davies' first orchestral piece. It is a synthesis of his acquired technique and musical experience up to that time. It may be viewed as a critical work for Davies and for music generally of the period, in the sense that it is both a beginning and an ending. An ending for many of a decade of moving towards total organisation: the realisation that the outer limits of serialism had been reached for all but the most technically minded. A beginning, for Davies, of a particular line of thought which was to permeate his music constantly: the fusing of medieval thought (not only musical devices, but the whole aesthetic) with serial thought, resulting in his own unique language.

Early as it is in Davies' output, Prolation already shows signs of individuality amid a serialism largely inherited from Webern and Boulez. He had already made tentative explorations of plainsong in tiny works like Alma Redemptoris Mater and realised its capacities for development. Increasingly, plainsong was to play a greater role in the structural, as well as thematic, organisation of a work. The notes of Prolation are apparently without symbolic significance, but Davies has applied plainsong-like characteristics to them by treating them as a cantus firmus.

The procedures within Prolation, although complex, were not new. Both Boulez, in Structures (1951) and Messiaen, in Mode de Valeurs et d'Intensités (1949) had already explored many aspects of total organisation,

and Stockhausen, at the time of Prolation, was completing what might be called the ultimate serialisation - Gruppen. The way in which Prolation stands apart from these works, however, is in the combination of such progressive elements with techniques from the past. Davies takes as his starting point the medieval principle of prolation, which determined the relative values of minim and semibreve in fourteenth-century rhythmic organisation. Durations could be subdivided into either two or three, according to their 'perfection'. Three was the perfect number, being associated with the Trinity: consequently perfect prolation meant that each semibreve contained three minims. Duple values were imperfect, each semibreve containing two minims.

Perfection was similarly applied to the relationship between breve and semibreve, known as 'tempus'. Thus four types of rhythmic organisation could be defined, first identified by Philippe de Vitry.[1] They are the 'Quatre Prolaciones':

	Symbol	
1. Tempus perfectum - Prolatio perfecta	⊙	= 9/8
2. Tempus perfectum - Prolatio imperfecta	O	= 3/4
3. Tempus imperfectum - Prolatio perfecta	C	= 6/8
4. Tempus imperfectum - Prolatio imperfecta	C	= 2/4

How does Davies apply this principle to his own

1. Philippe de Vitry: Ars Nova c. 1325.

music? It is essential to regard prolation as a principle rather than a system, as Davies' use of it is far more complex than the four rhythmic types above. He explains that

> In the present work prolation is extended to govern greater and smaller proportions - from periods covering hundreds of bars, to the smallest 'irrational' groups - also self-evidently to super- and juxtapositions of a more complex nature than simple duple and triple metres. [1]

Thus 'proportion' means not just 2:3, but 5:7, 10:1 and so on, and such relationships exist on every level of time in the piece.

All musical material derives from a single pitch set:

G F C# A G#

and a single duration set:

10 4 7 6 5

The pitch set is expressed at all transpositions, and like the duration set appears in prime and retrograde forms only. The duration set is perhaps better thought of as a 'proportion set', as it is the ratios rather than the actual values which remain absolute.

Davies has thus defined strict limits within which to work before embarking on the composition. His attitude to the set is Webernian: to reduce the source material as

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1. Preface to the score.

far as possible and to make maximum use of it. An examination of the first large area of the piece will reveal the method of pitch working.

Bars 1-236 comprise five sections and a coda, marked by double unbroken bar lines, which form a closed structure. The five sections each divide further into five subsections, marked by broken double bar lines. Within each subsection are five set statements, usually with another five parallel statements, and each set contains five notes. The analogy of the Russian doll which contains gradually diminishing replicas of itself is appropriate here, for large and small events arise from exactly the same material.

The first section is bars 1-72. The pitch sets of its five subsections (to be called A1, 2, 3, 4, 5) are shown in Example 2.1. It can be seen that each subsection contains two parallel arrangements of sets. Further to this the following points may be noted:

1. The transposition of subsequent sets is determined by the constituent notes of the first. Thus set G F $C^{\#}$ A $G^{\#}$ is followed by sets beginning on F, $C^{\#}$, A, and $G^{\#}$. If a set is retrograde, it will end with these notes.
2. Similarly, subsections A2, A3, A4 and A5 derive from the sets of A1: where A1 began on G, A2 begins on F, and so on.

SUBSECTION

A1	G F C# A G#	F Eb B G F#	D Eb G B C#	A# B D# G A	Ab F# D B♭ A
	Eb E G# C D	C# D F# B♭ C	G# F# D B♭ A	E D B♭ F# F	E F A C# Eb
A2	F Eb B G F#	Eb C# A F E	C C# F A B	G# A C# F G	F# E C Ab G
	C# D F# B♭ C	C C# F A B♭	F# E C Ab G	D C Ab E Eb	D Eb G B C#
A3	Eb E G# C D	Eb C# A F E	G F C# A G#	C Db F A B	D Eb G B C#
	G# F# D B♭ A	F# E C Ab G	Eb E G# C D	B C E G# B♭	A G Eb B B♭
A4	B C E G# A#	B A F C# C	Eb C# A F E	G# A C# F G	B♭ B Eb G A
	E D A# F# F	D C Ab E Eb	B C E G# B♭	G Ab C E F#	F Eb B G F#
A5	G# F# D B♭ A	F# E C Ab G	Eb E G# C D	B C E G# B♭	A G Eb B B♭
	D Eb G B C#	A# B D# G A	A G Eb B B♭	F Eb B G F#	F F# B♭ D E

Primary sets

secondary sets

EXAMPLE 2.1 Prolation bars 1-72. Pitch sets.

3. Shaded areas represent retrograde sets. Considering only the top line of sets in each subsection, it can be seen that A1 contains the following arrangement of sets ([P] = prime, [R] = retrograde):

[P] [P] [R] [R] [P]

A2 also has this arrangement. A3 and A4, however, appear thus:

[R] [P] [P] [R] [R]

This is a mirror image of the first arrangement. A5 reverts to the first.

These two versions introduce another organised element into the piece. Whenever a set, on whatever level, is prime, the elements within it will be arranged [P] [P] [R] [R] [P]. Whenever a set, on whatever level, is retrograde, the elements within it will be [R] [P] [P] [R] [R].

If Example 2.1 is reduced in detail so that only the initial notes of each primary set are shown, this becomes clearer:

A1	G	F	D	$A^{\#}$	$G^{\#}$	[P]
A2	F	E^{b}	C	$G^{\#}$	$F^{\#}$	[P]
A3	E^{b}	E^{b}	G	C	D	[R]
A4	B	B	E^{b}	$G^{\#}$	B^{b}	[R]
A5	$G^{\#}$	$F^{\#}$	E^{b}	B	A	[P]

EXAMPLE 2.2

Prolation

Section A.

By further simplifying the diagram so that everything appears in its prime form a transpositional square becomes evident:

A1	G	F	C#	A	G#
A2	F	Eb	B	G	F#
A3	C#	B	G	Eb	D
A4	A	G	Eb	B	Bb
A5	G#	F#	D	Bb	A

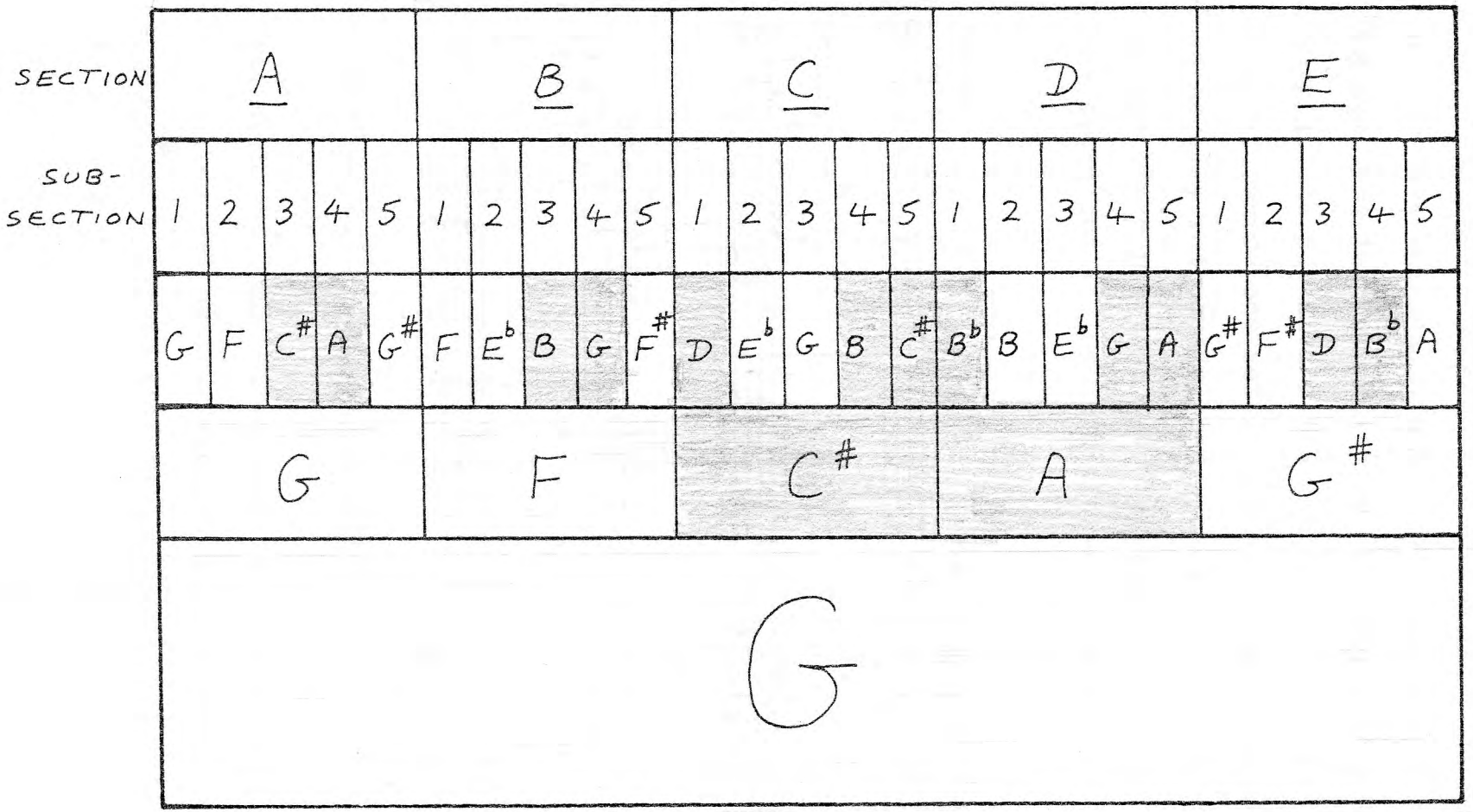
EXAMPLE 2.3 Prolation Section A

On the basis of this it could be proposed that the whole of Section A is a prime set G F C# A G#. Sections B, C, D and E are simply extensions of this principle. All the composition has in fact been done after the first five notes of the piece.

If Section A is G [P], it is likely that the other sections will be:

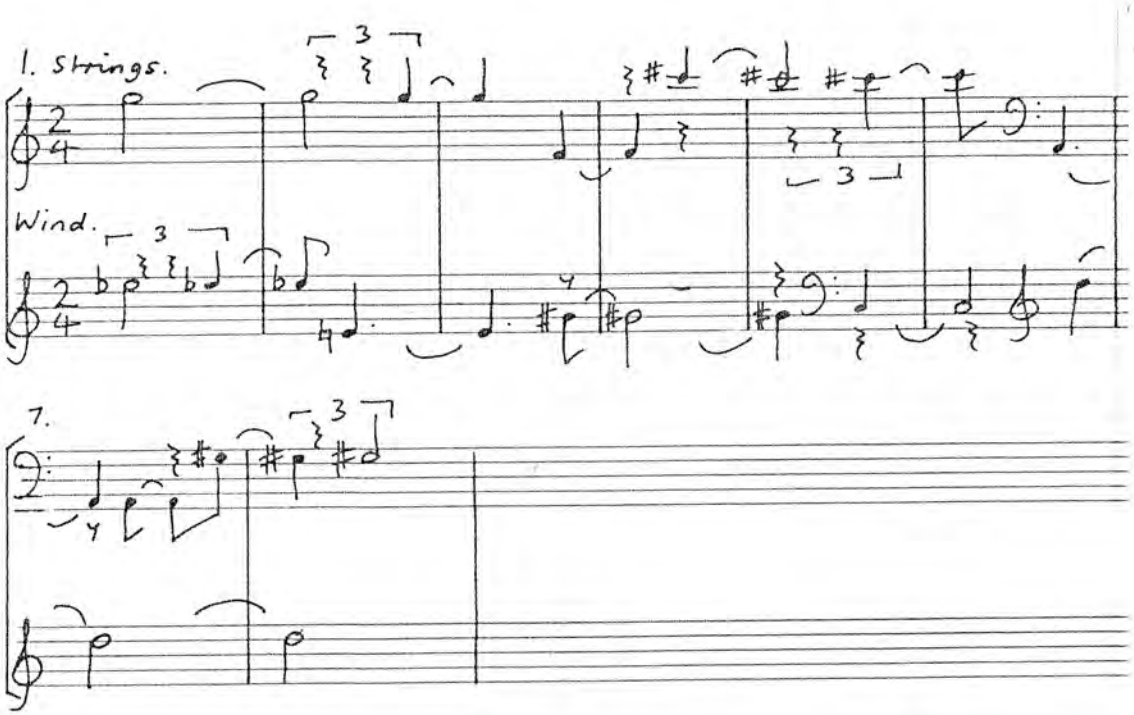
B F [P]
C C# [R]
D A [R]
E G# [P]

This is so, and the whole area of music is illustrated in Example 2.4.



EXAMPLE 2.4 Prolation Pitch sets, bars 1-219 (excluding coda)

There are also other sets, illustrated in Example 2.1. The ones running parallel to the primary sets are a complementary arrangement occurring at the interval of a fifth. Davies may have originally conceived this idea in terms of organum, but the combination of set versions allows for very little parallel fifth movement. As seen in Example 2.1, where one set is prime, its complementary set is usually retrograde, and vice versa. Thus the opening of the piece presents two transpositions of the set a fifth apart but moving in different directions:



EXAMPLE 2.5 Prolation Pitch sets, bars 1-8.

Although the whole first area strongly suggests G, it is not followed by four similar areas based on F, C♯, A and G♯, as might be expected. Instead the piece, which is broadly in four parts, explores in different ways the serial structure outlined above:

First area	Vivace	bars 1-236
Second area	Lento	bars 237-329
Third area	Vigoroso	bars 330-380
Fourth area		bars 377-end.

A technical analysis of the first area has revealed at once the complexity and the extreme simplicity of the pitch structure. But how is such monodic, linear material assigned to a large-scale orchestra in a way that sustains interest, or does it fail to do so?

The material with which Davies worked was mostly planned before composition began, the music being in the manner of a realisation. There is no development, and could be none, due to the pre-determined nature of pitch and duration. In its place is variation - of texture, register, cantus treatment, and orchestration. Formal problems are dispensed with: the set arrangements form ready-made closed areas to be filled.[1] There is, however, plenty of room for inventive presentation of material within these closed areas.

The examples that follow show various ways in which set statements are applied to the orchestra. They vary from long cantus lines to short, motivic gestures. We may identify these categories:

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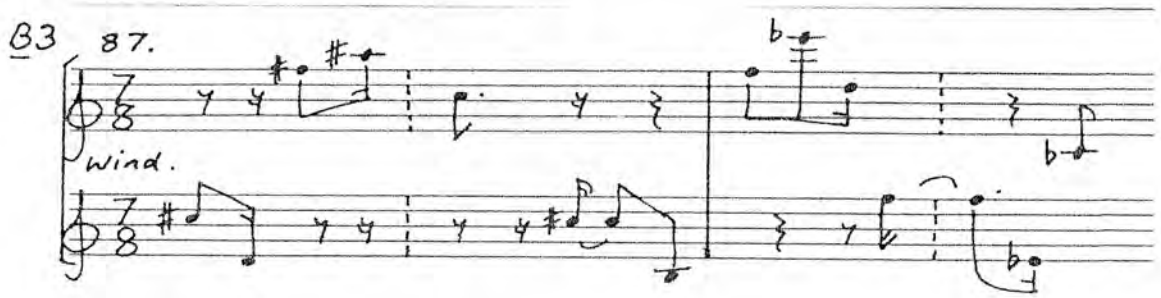
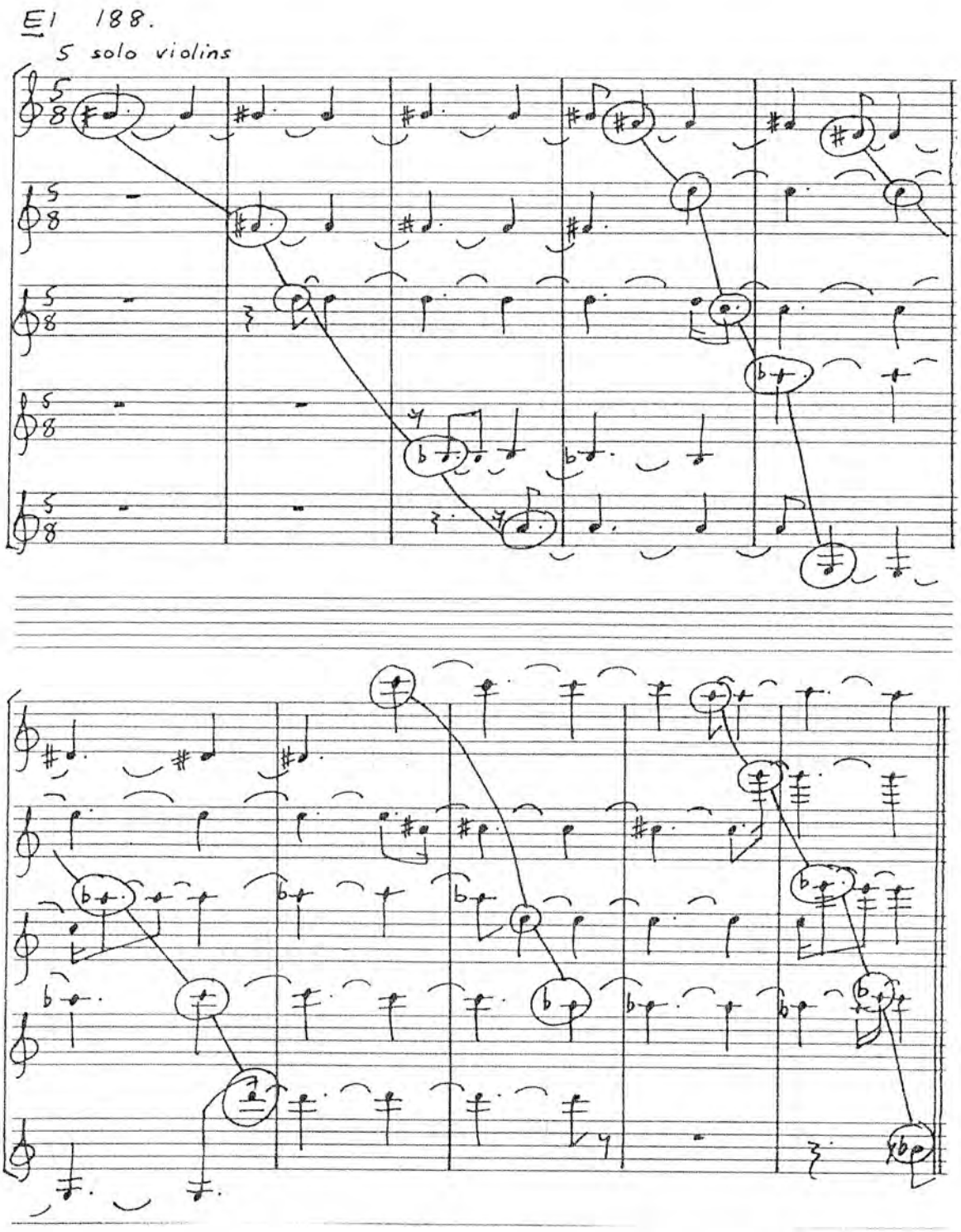
1. This is in marked contrast to the Second Taverner Fantasia, where cantuses articulate, rather than replace rondo and scherzo structures.

1. The migrant cantus. Continuity is emphasised by overlapping attacks on the same pitch by more than one instrument, as shown at the beginning of the work, Example 2.5.
2. The same, without overlapping attacks. Notes are presented one after the other, thus:

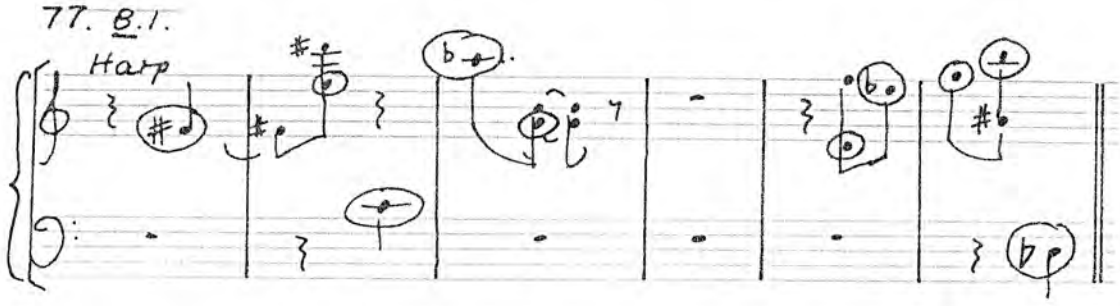


EXAMPLE 2.6 Prolation Subsection B3, bars 87-88, woodwind only.

3. A cantus where pitches as well as attacks overlap, and gradually increase the density of texture. This kind of statement, being static, is sharply contrasted with the activity of Example 2.6 (Example 2.7).
4. The non-migrant cantus, where all notes of the set appear on one instrument. This is not nearly so common as it is in later works. In Ave Maris Stella and Symphony No. 1, nearly all cantuses are assigned to a single instrument for a considerable length of time. In Prolation, however, Davies does not have the resources of background and secondary material with which to support long single instrument cantuses, and they only appear sporadically, as in Example 2.8.



EXAMPLE 2.7 Prolation Subsection E1, bars 188-197. Pitch sets.



EXAMPLE 2.8 Prolation Subsection B1, bars 77-82. Pitch set.

5. A long cantus occurring at the same time as shorter set statements. The idea of the same musical event happening at different speeds, derived from the medieval mensural canon, has been discussed in Chapter 1. The example below illustrates a noticeable hierarchy in the division of material into primary and supportive elements (Example 2.9). This is something which is built on in later works and becomes an integral part of magic square usage.

In Example 2.9, elements marked [A] are primary, structural parts in the form of sustained cantuses. Elements marked [B] are derived from the same material as [A], but act in a decorative capacity, greatly reduced in time. [C] elements play a background, supportive role.[1] These supportive elements are largely chordal, acting in a harmonic capacity to fill out the texture. In Example

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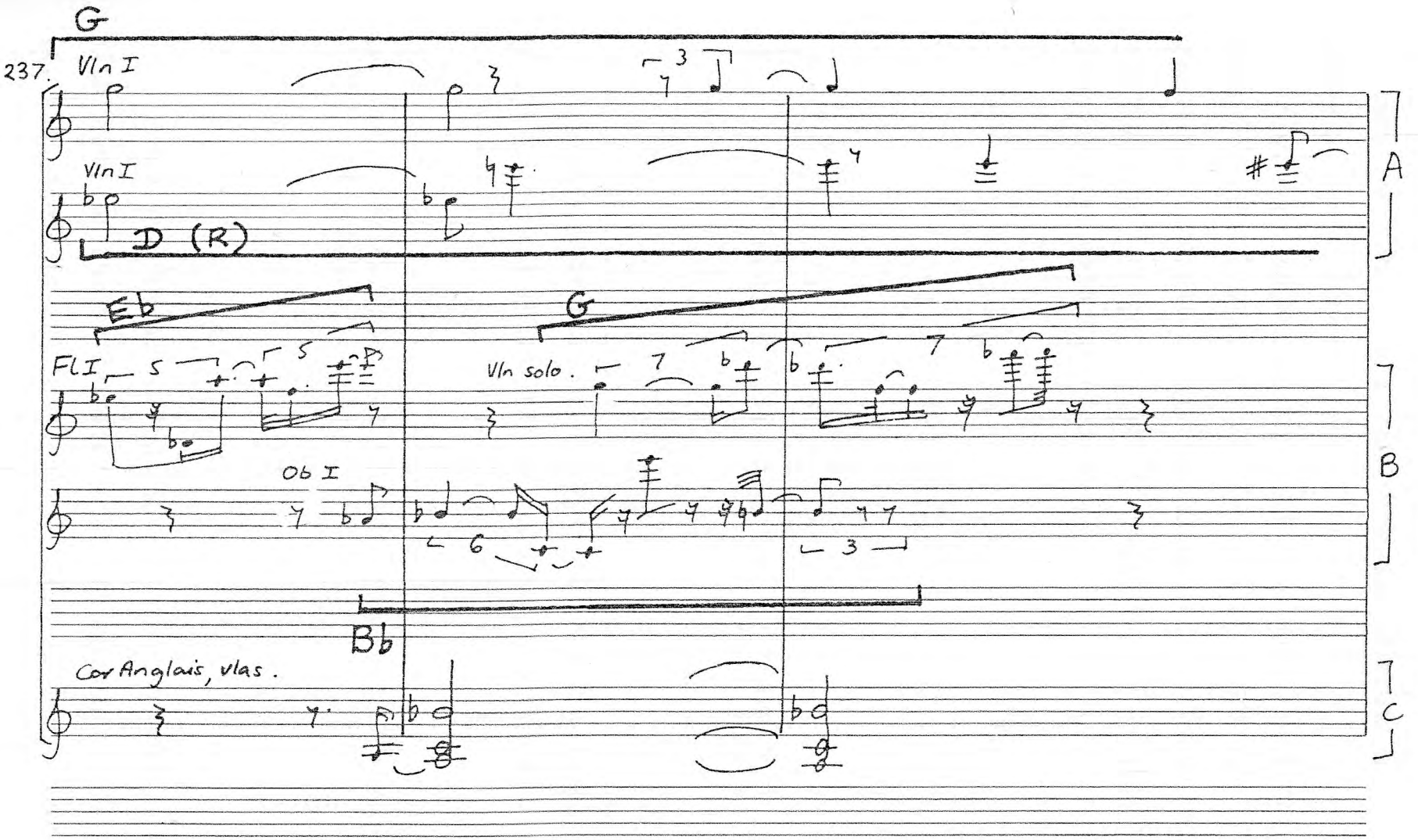
1. cf. the similar hierarchic arrangement in Example 5.12, Chapter 5 below.



EXAMPLE 2.9 Prolation bars 237-239 Mensural organisation and structural hierarchy.

2.9 they are subordinate, but they also operate more actively, as in subsection C1 (bar 100).

In C1 the two arrangements of sets may be clearly seen, one in woodwind and one in brass. Reference to Example 2.4 indicates that the subsection is based on a retrograde version of the set beginning on D. The five parallel sets therefore run

$E^{\flat}$	E	$A^{\flat}$	C	D	
[R]	[P]	[P]	[R]	[R]	woodwind

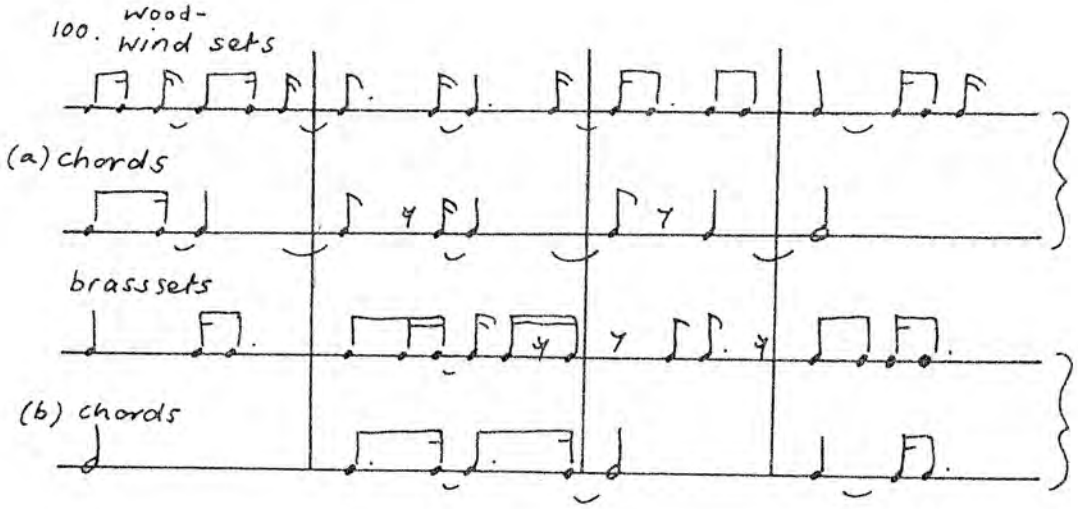
$B^{\flat}$	B	$E^{\flat}$	G	A	
[P]	[R]	[R]	[P]	[P]	brass

Rhythmic uniformities suggest that the remaining chordal material falls into two distinct categories:

(a) oboe II, clarinet II, bass clarinet, horns, timpani;

(b) strings.

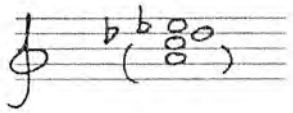
It may also be noted that the attacks of (a) coincide with those of the woodwind sets above, and those of (b) with those of the brass sets. Thus (Example 2.10):



EXAMPLE 2.10 Prolation Subsection C1, bars 100-104. Coincidence of attacks.

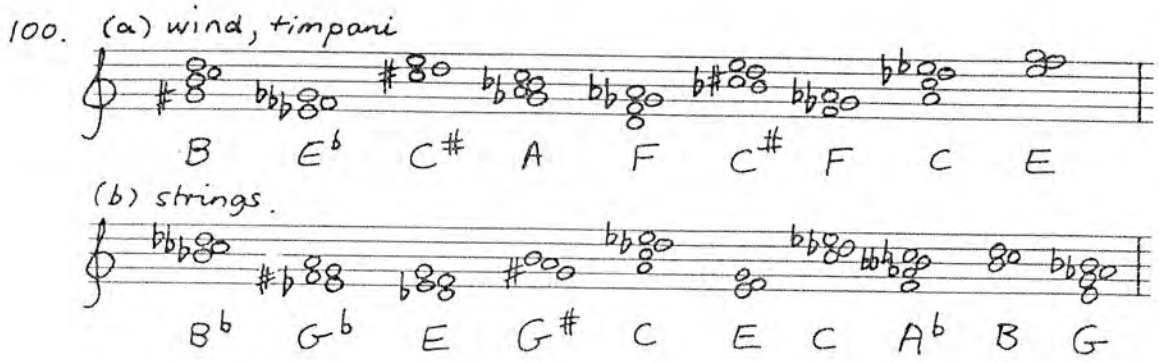
The chords are lending rhythmic support to the set material, which has already had its durations fixed by the overall serial plan.

This reduces considerably the apparent complexity of the score. The actual chords themselves are also simple, being all transpositions of the same one: a trichord with an optional fourth element:



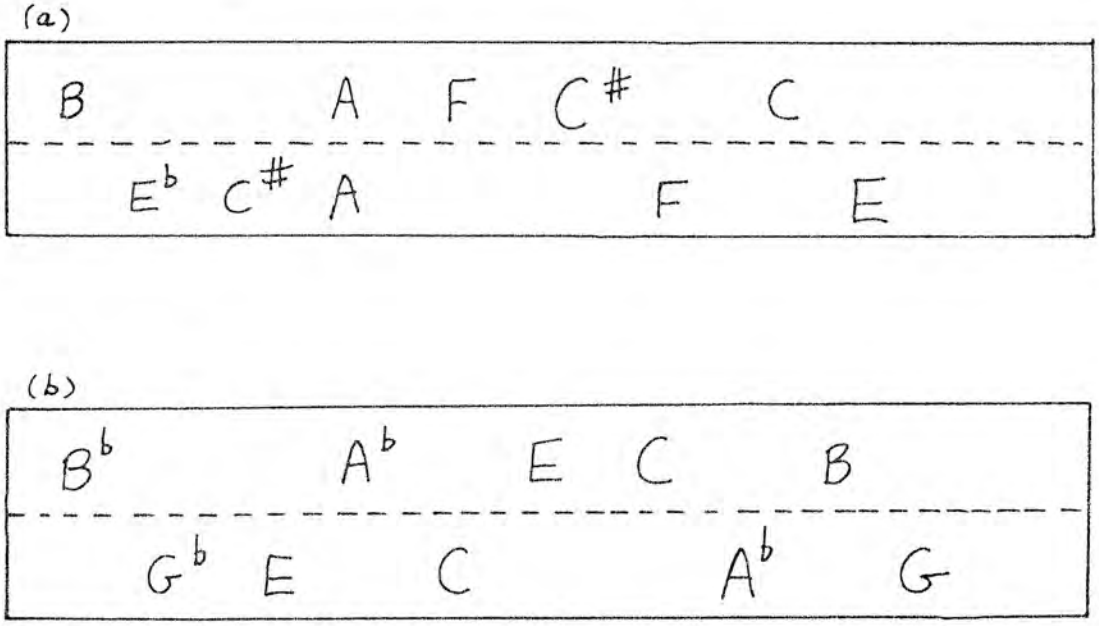
EXAMPLE 2.11 (This transposition to be called C).

The two lines of chords, (a) and (b) are shown in Example 2.12.



EXAMPLE 2.12 Prolation Subsection C1.
Chordal material.

The order of these chords is no coincidence. They are in fact a simultaneous interlocking statement of two sets each - transpositions of the main set of Prolation. The (a) chords trace sets B and E♭, the (b) chords trace sets B♭ and G♭:



EXAMPLE 2.13 Prolation Subsection C1.

Constant transpositions of one chord playing a supportive role in this way are common in Davies.[1] Most of the pitch material in Prolation can be accounted for using the above analysis.

Although highly organised, the material in the work is still subject to segregation into foreground and background elements. We will now consider the role of the orchestra which, as shown in Example 2.9, serves to articulate cantuses and to differentiate between levels of activity. At this stage in Davies' writing there is little characterisation of individual instruments: all play roughly the same material in a similar way. Later orchestral music assigns certain kinds of music consistently to specific instruments.[2]

If less effective in a colouring role, the orchestra in Prolation does play an important part in structuring. In the second area, bars 237-329, the orchestra is divided into five groups, each associated with one pitch of the set:

G (a) piccolo, flute, oboe, violin I, viola, solo violin;
F (b) clarinet, bass clarinet, bassoons, harp;
C♯ (c) violin II, cello, double bass, horn;

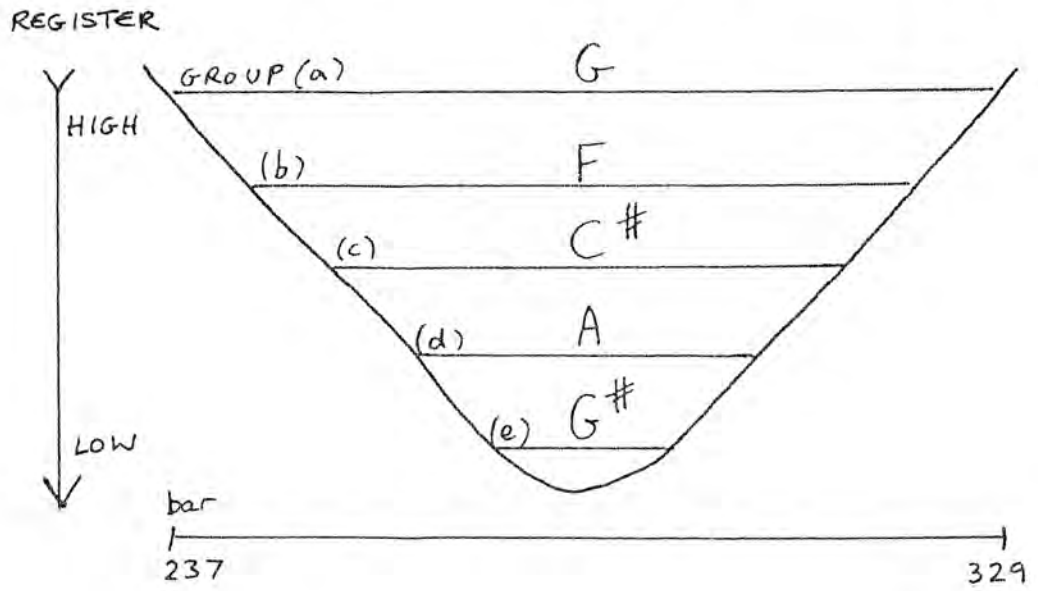
---

1. See the chords at the opening of Taverner I/4.
2. In the First Symphony, trombone and marimba are favoured cantus-bearing instruments, while horns and trumpets are used for 'fanfare' music.

A (d) trumpets, xylophone, glockenspiel, celesta;

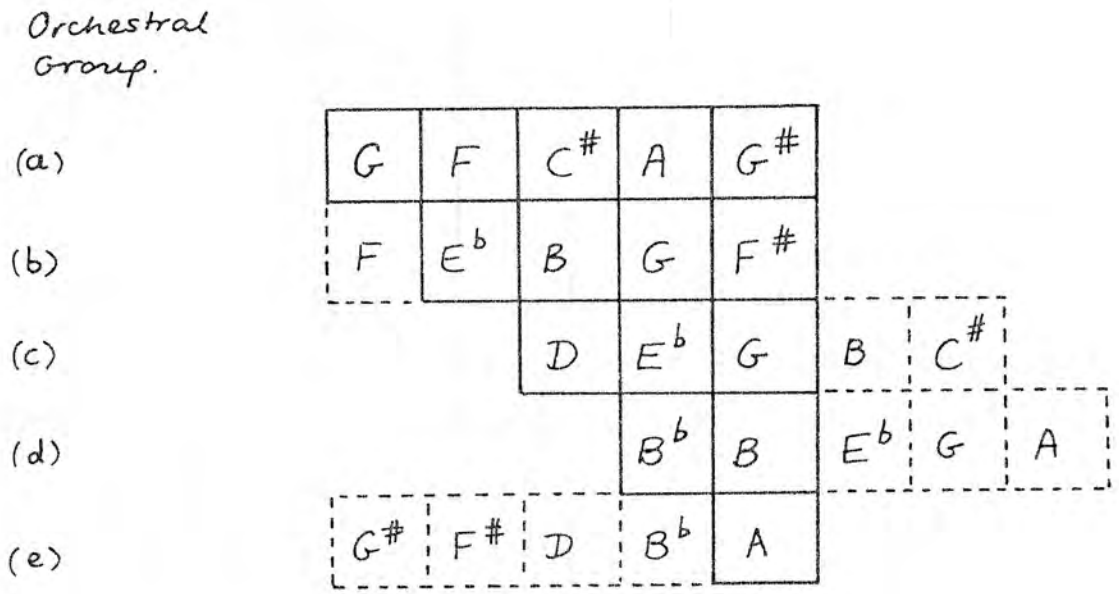
$G^{\#}$ (e) trombone, tuba, timpani.

There is a significant downward registral progression in these groups, and a gradual textural change from strings and woodwind to brass and percussion. The groups operate serially in a manner similar to that of the first area. The five presentations do not, this time, appear consecutively, nor simultaneously, but in a successive entry and exit system resulting in an arch structure:



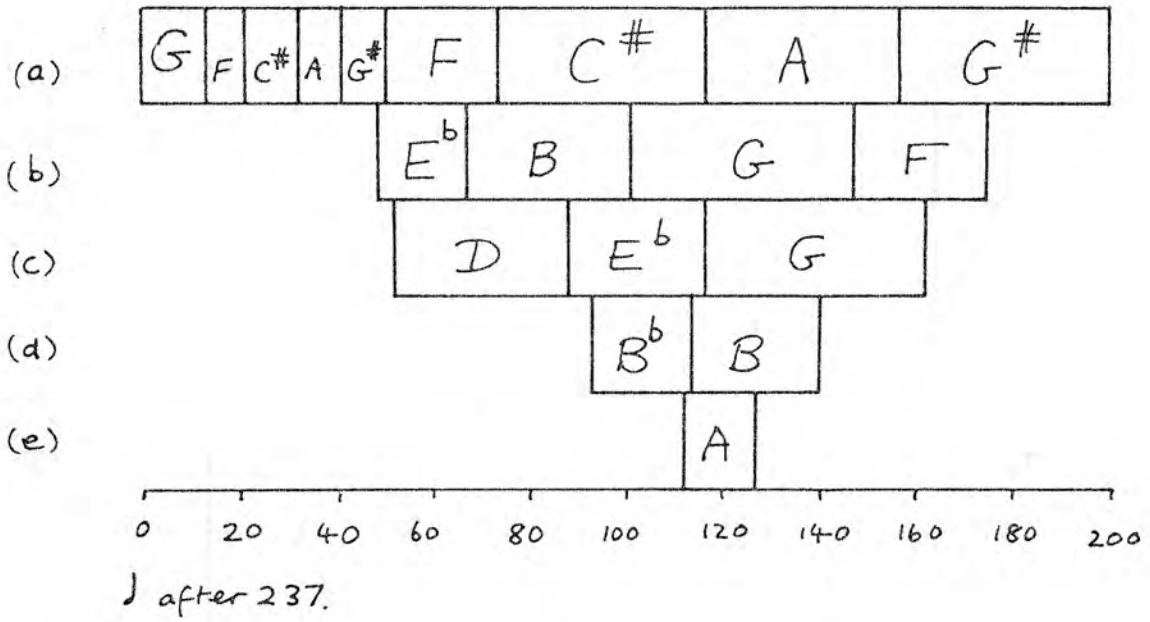
EXAMPLE 2.14 Prolation, second area.
Arrangement of orchestral groups.

The basic matrix used in the piece is shown in Example 2.15.1. In this second area, each horizontal set after the first one loses one, two, three and four notes successively - the prime sets losing them from the beginning and the retrograde sets from the end. These discarded notes are shown enclosed in dotted lines. The



EXAMPLE 2.15.1 Prolation, second area.

Set presentations by orchestral groups.



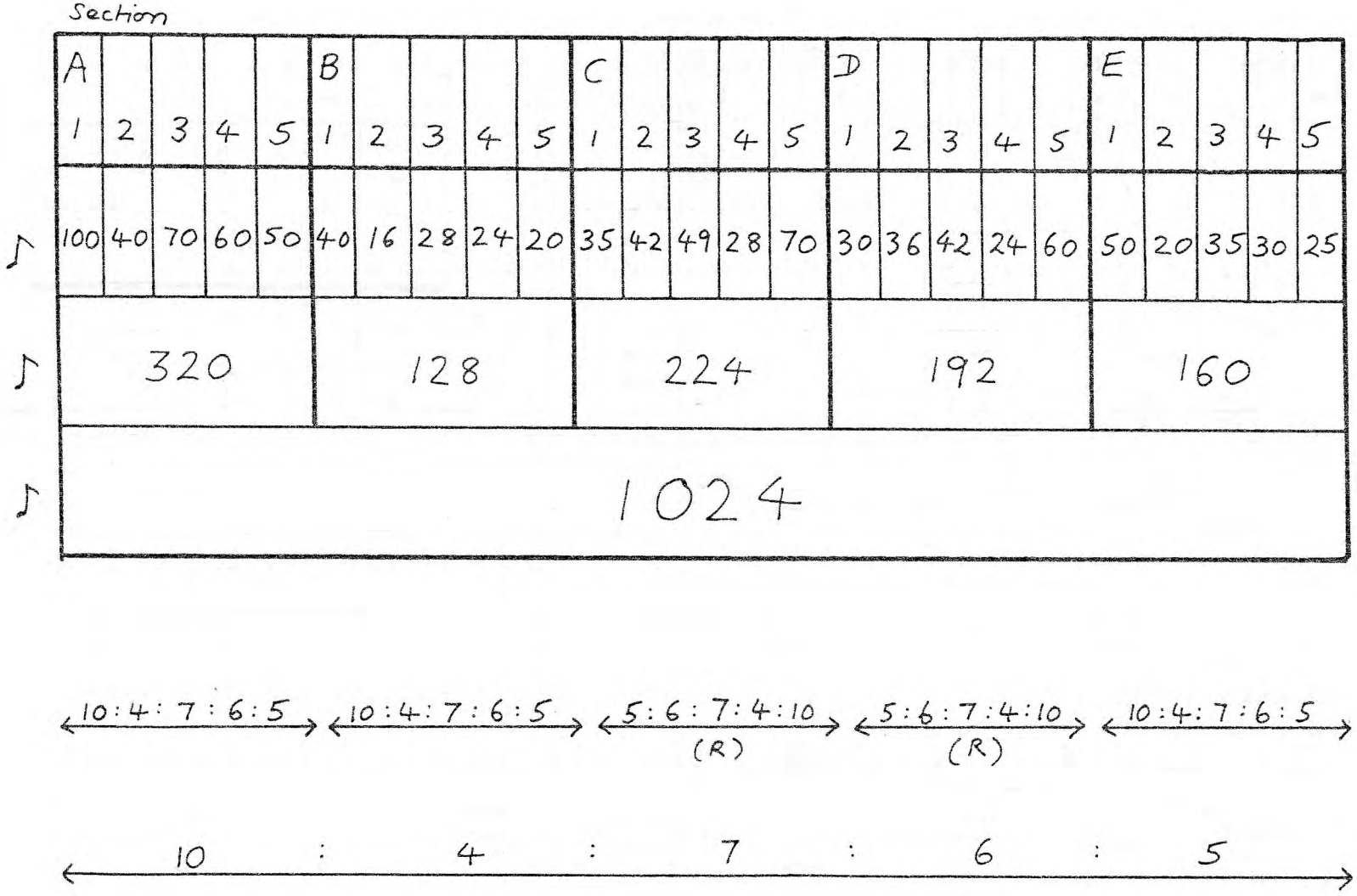
EXAMPLE 2.15.2 Prolation, second area.

Actual occurrence of sets.

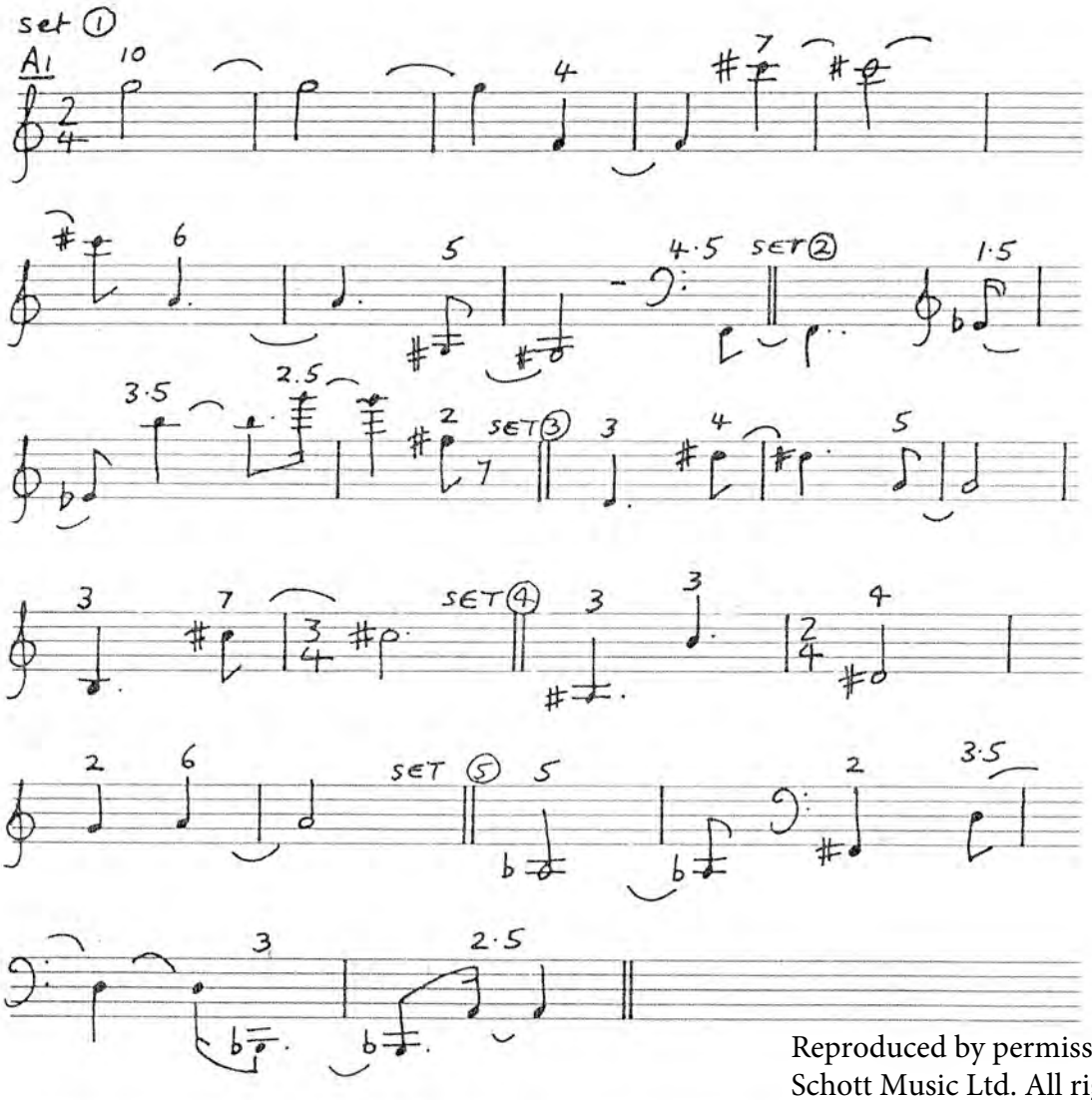
resulting stepwise movement is then shifted to form an arch (Example 2.15.2).

This is an early example of Davies using orchestration functionally. It is one solution to the formal problems inherent in a large work where thematic development is limited. Another is the use of proportional workings to define temporal relationships. The 'proportion set', 10 4 7 6 5, works like the pitch set in organising material on all levels of time. Example 2.16 shows this at work during the first area, using the quaver as unit. Here two ratios are shown: between sections and between subsections. Identical relationships exist on a lower level: between sets and between notes.

Hence, like pitch, the limits of duration are determined during the first five notes of the piece. The durations of primary set notes in Subsection A1 are shown in Example 2.17. From these five sets of five notes each a matrix may be constructed, similar to the pitch matrix of Example 2.3. In the matrix, sets are positioned above one another to show the basic ratios acting across sets as well as within them (Example 2.18). As with pitch, the third and fourth sets are retrograde, but are shown in prime form in Example 2.18 for clarity. Proportions are often approximate, especially in the lower numbers, due to the difficulty of expressing fractions in musical durations.



EXAMPLE 2.16 Prolation, first area. Proportional organisation.



EXAMPLE 2.17 Prolation, subsection A1.
Primary set durations.

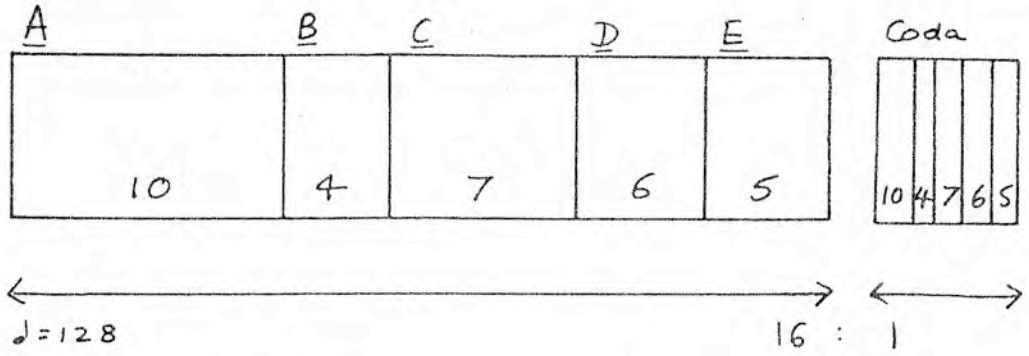
A1

	♪				
set ①	10	4	7	6	5
set ②	4·5	1·5	3·5	2·5	2
set ③	7	3	5	4	3
set ④	6	2	4	3	3
set ⑤	5	2	3·5	3	2·5

EXAMPLE 2.18 Prolation, subsection A1.
Duration matrix.

Here, therefore, is one manifestation of Davies' interpretation of the medieval principle of prolation; all events being subject to an underlying law of proportion.[1]

Ratios between areas are as carefully calculated as those within areas. Example 2.16 showed the entire first area to be 1024 quavers long, at a speed of ♩ =128. Following the five main sections is a coda (bars 220-236) which summarises chordally the harmonic and rhythmic activity up to that point. It is a static reflection of a kind frequently found in Davies' music after periods of intense activity.[2] This coda lasts for 64 quavers (excluding the final general pause bar), which is exactly one sixteenth of the length of the preceding five sections:



EXAMPLE 2.19. Prolation, first area. Proportions.

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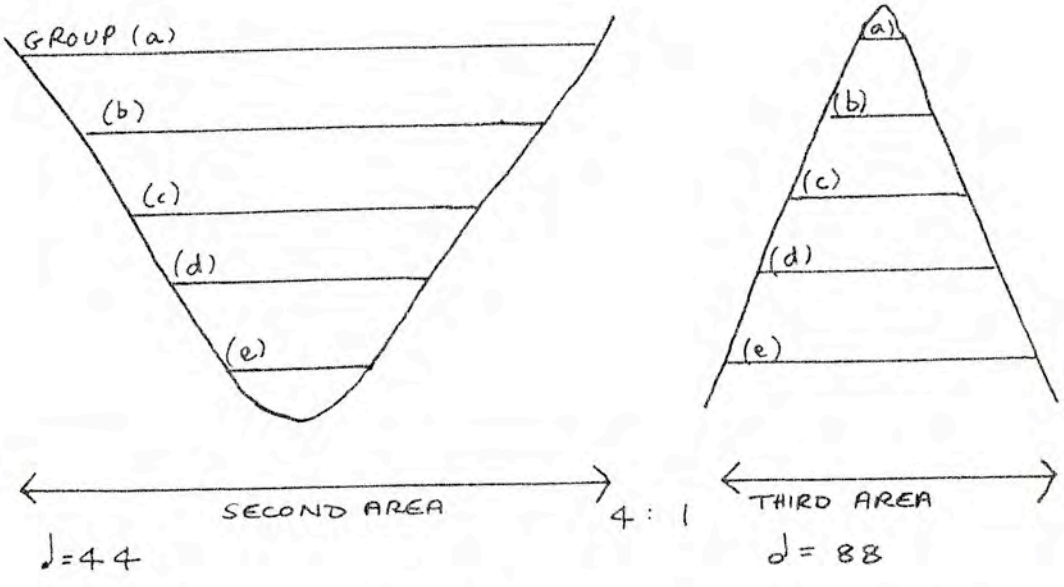
1. cf. Davies' interest in the isorhythmic structure of Dunstable's Veni Sancte Spiritus, discussed above, pp. 13-14.

2. cf. the function of the trio section in the Second Taverner Fantasia (bars 760-861), discussed below, pp. 106, 111.

The second area lasts 372 quavers at ♩ = 44. The third area immediately following it is something of a mirror image, the orchestral groupings being reversed so that registers enter from low to high instead of from high to low. Pitch and duration remain the same. This time, however, everything happens four times as fast. Again there are 372 quavers, but now at the speed of ♩ = 88.

These two factors - the turning upside-down of the registral entry system and the compression of events into a quarter of the time - make the third area almost a parody of the second. The two areas may be illustrated thus:



EXAMPLE 2.20 Prolation, second and third areas. Proportional relationship and registral patterns.

Although further relationships of a similar design may be found, a single system of ratios encompassing the whole work is not immediately apparent.

There is sometimes a danger of looking for ratios that do not exist.

A knowledge of the compositional techniques within Prolation is essential to an appreciation of the work. We probably gain more from it by looking at the means rather than at the end. But the rigid self-discipline which Davies imposed upon himself during its composition has not been unfruitful. Although in some ways an abortive effort, involving elaborate serialisation of a kind Davies never attempted again, it also points forward in many respects to the Taverner works and beyond. This has been shown particularly in the methods of cantus treatment, and in the use of the orchestra as a functional element in the musical structure, both of which we will show to be crucial factors in later works.

CHAPTER III

TAVERNER

Davies' obsession with the life and music of the sixteenth-century composer John Taverner has resulted in two of his largest and most complex works: his only full scale opera, Taverner, and the orchestral Second Taverner Fantasia. Moreover, the preoccupation has remained with him and is reflected in much of his later output. Music from the Taverner works is found in, for example, Vesalii Icones, Revelation and Fall (1965) and The Martyrdom of St Magnus (1976).

Davies is both composer and librettist in the opera. To attempt a libretto based on fact is something which few writers this century have come to terms with. Stephen Pruslin, the librettist in Birtwistle's Punch and Judy (1966), found his ideal starting point in a fairy-tale, free from the dictates of a written source and obligation to historical truth. Thus he was able to give his imagination free rein in terms of ritual, symbolism, fantastic events and tiny structures. As in Taverner, actual character portrayal is of secondary importance (except for the purpose of stereotyping good and evil) to the enactment of a drama, and chronological time sequence is subordinate to internal pacing within each closed form. Both works juxtapose events rather than following through continuous strands of action.

The intentions of the Birtwistle/Pruslin work and the Davies work are nonetheless different. Birtwistle's passion is the pure art form for its own sake. His is the Greek aesthetic of order and balance; action and

comment; tragedy and comedy. For Davies, however, the art form is meaningful beyond itself: making clear the complex web of real and symbolic action; parody and non-parody; musical and dramatic transformation.

The use of factual source material in the opera poses a problem already mentioned: historical honesty. When dealing with characters that actually existed one cannot stray too far from the truth. Taverner obviously existed, as did Henry VIII and Cardinal Wolsey, although Davies avoids naming them as such. The trouble with keeping to exact events is that the reality can sometimes be less than interesting, and is likely to be unsuitable in its raw state as an opera subject. But here Davies had an advantage. Taverner's life has been very poorly documented: his dates and activities are even today largely a matter for speculation. Not only that, but a fascinating, albeit groundless piece of biographical information was in public circulation for many years, perpetrated by the scholar E.H. Fellowes.[1] This has now been denounced as invention, but does not make Taverner the composer any less intriguing; if anything it adds to the interest.

The story certainly provided an ideal basis for Davies' opera. Here was a situation already shrouded in mystery, set amid times of religious and political upheaval in England. It was an ideal mixture of fact and fantasy for Davies, who has never looked to the

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1. Preface to 'Taverner'. Tudor Church Music I, 1923.

ethereal or purely imaginary for inspiration. He is a scholar with a deep sense of his own human ties with past centuries, and needs an historical anchor. At the same time room is made for distortion, for grotesque and fantastic elements. Two other theatre works, The Martyrdom of St Magnus and The Lighthouse (1979) reflect the same principle of a factual background set against mystery and the supernatural.

The outline of the disputed Taverner story is this: Taverner, composer and chapel organist, is accused of possessing heretical literature. He becomes a Protestant and feels compelled to renounce his music and his family with his old faith. Having betrayed, in his music, his whole self, he becomes a religious fanatic - assisting in the burning of heretics and in the persecution of monasteries.

Colin Hand, in the only monograph on Taverner,[1] refutes this account as inaccurate and misleading, and backs this up with evidence of letters written by Taverner. From these it is clear how misunderstandings arose: far from being a Protestant fanatic or persecutor, Taverner was simply concerned to rid the Roman Church, to which he was deeply attached, of superfluous activities such as papal idolatry and worship of relics. As for his alleged intrusion into monasteries, it is clear from records that his sole purpose as Crown Agent was to investigate the sorry state into which many such institutions had fallen, and in some cases to close

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1. Colin Hand: John Taverner, London, 1978.

them altogether because of the extreme poverty of the communities.

Inaccurate or not, it is the first account which Davies used for his opera. Much research both in this country and at Princeton, USA[1] brought forth the letters and documents which were to form much of the libretto.[2] A twofold plan of events emerged: on one hand the Reformation discussions between the King and the Cardinal and the resulting dissolution of the monasteries; on the other hand, the circumstances leading to Taverner's 'conversion.' At the outset these two appear quite distinct. In Act I/1 Taverner is on trial for heresy; in Act I/3 the King, in the Throne Room, discusses with the Cardinal his (hopefully) impending divorce. Taverner and the King never actually meet. Through some judicious handling by Davies, however, their paths do overlap in several ways. Firstly, two characters - the Cardinal and the Jester - appear in both situations; secondly, Taverner's role as Crown Agent in Act II/3 - effecting the desecration of a monastery - had been the subject of the King's discourse in the previous scene; and thirdly, Taverner makes an unexpected and illogical appearance in the Throne Room at the beginning of Act I/4.

There are obviously significant parallels between the situations of Taverner and the Royal Court. Both Taverner

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1. Davies obtained a Harkness Fellowship to study at Princeton, 1962-64.

2. Detailed in Davies: '_Taverner_: Synopsis and Documentation'. _Tempo_ 101, 1972, pp. 4-11.

and the King were trying to break away from papal dictate, and facing many problems in doing so. Taverner's aims were spiritual, however; the King's material and political.

As well as the task of writing the libretto, Davies' problem was how to sustain long-term interest - musically and dramatically - in this pattern of events. Fascinating though it may be, as a straightforward account the story would make dull theatre.

Taverner works, if it works at all, through parody. Gabriel Josipovici puts it most succinctly when he says that parody is

> ....the assertion of the primacy of process over product. [1]

The 'product' in Taverner is virtually intangible: characters change their identity, symbols their meaning. Ceremonies are alternately dignified and farcical. Nothing is ever as it seems (a well-used Davies cliché); logic turns to fantasy in the space of minutes. The 'process' is all-important: transformations, whether physical, spiritual, musical or symbolic, give the opera its life.

Two definitions of parody are given in Grove's Dictionary:

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1. G. Josipovici: 'Taverner - thoughts on the libretto'. Tempo 101, 1972, pp.12-19.

(i) A composition generally of humorous or satirical intent in which turns of phrase or other features characteristic of another composer or type of composition are employed and made to look ridiculous, especially through their application to ludicrously inappropriate subjects.

(ii) A term used to denote a technique of composition primarily associated with the sixteenth century, involving the use of pre-existent material.....
In renaissance music the borrowing of of material from one composition as a basis of another was commonplace. The essential feature of parody technique is that not merely a single part is appropriated to form a cantus firmus in the derived work, but the whole substance of its source - its themes, rhythms, chords and progressions - is absorbed into the new piece and subjected to free variation in such a way that a fusion of old and new elements is achieved. [1]

Both these types are found in Davies. Despite many examples of humorous or mocking parody, however, it is the second of the above definitions which is most appropriate to the body of his work.

Borrowing in the sixteenth-century sense is an integral part of Davies' compositional thought. In Taverner, his starting point is the mass Gloria Tibi Trinitas by John Taverner, and in particular the setting of the 'Benedictus.' In keeping with the Grove definition, not only the plainsong cantus, but the whole setting with its harmonic and intervallic implications is brought into play. It is either quoted unchanged, as at the end of

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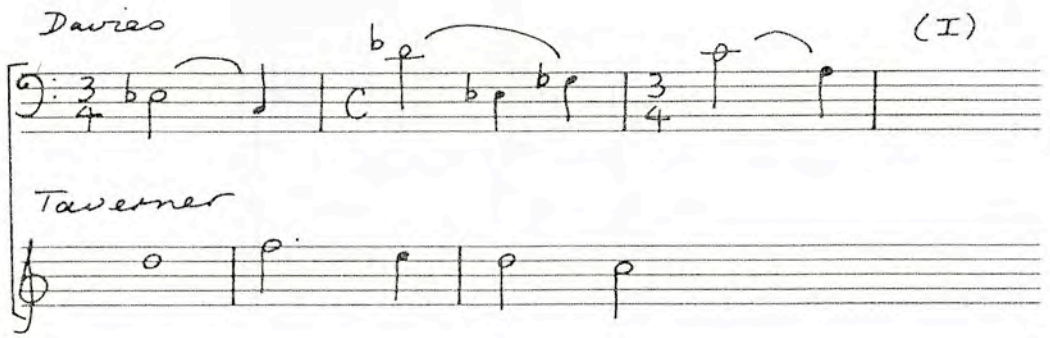
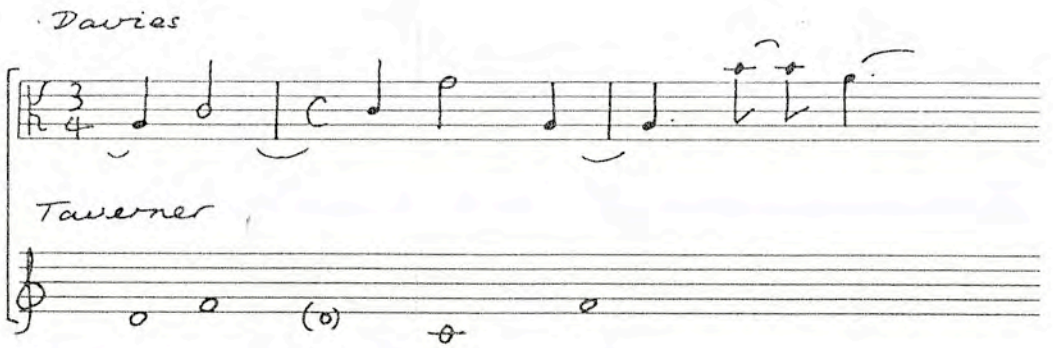
1. M. Tilmouth: 'Parody'. Grove's Dictionary of Music and Musicians 14, 1980, pp 238-239.

the opera, or transformed into sets or motives.

Example 3.1 shows an extract from the original Taverner setting - the 'In Nomine' from the 'Benedictus'. Several important derivations of this used in the opera (and subsequently in the Second Taverner Fantasia) are shown below:

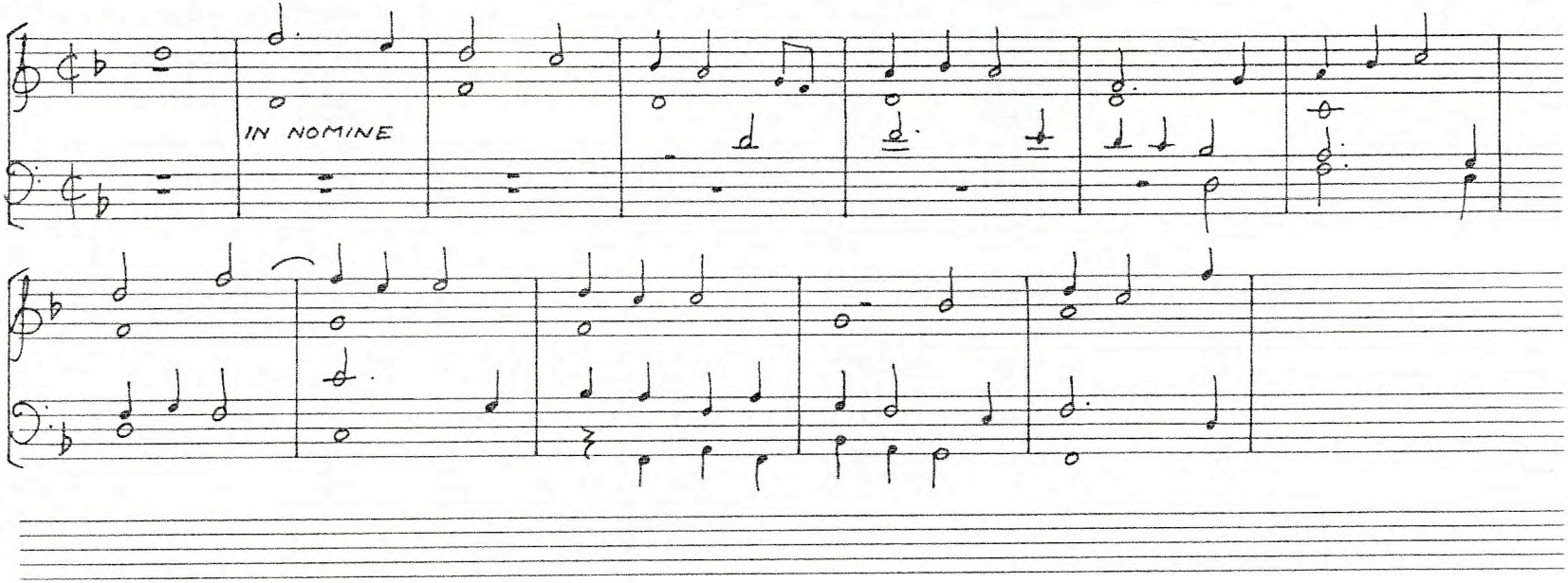


EXAMPLE 3.2.1 Taverner I/2, bars 147-9 (cello). Comparison with Taverner's 'In Nomine'.



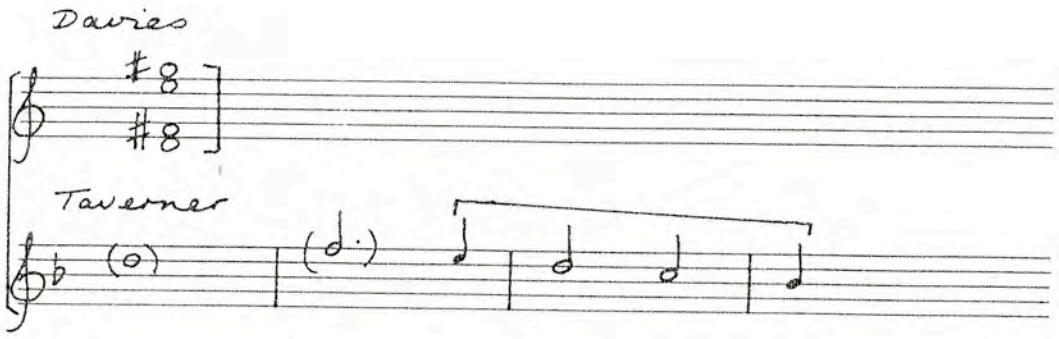
EXAMPLE 3.2.2 Taverner I/2, bars 149-151 (viola). Comparison with Taverner's 'In Nomine'.

The cello line in Example 3.2.1 originates from an inversion of the treble part of the 'In Nomine'. The

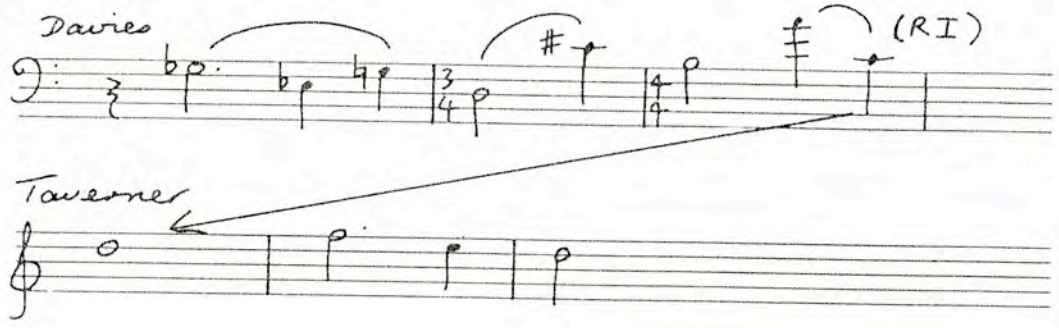


EXAMPLE 3.1 John Taverner: 'In Nomine' from the mass Gloria Tibi Trinitas.

viola line which follows in Example 3.2.2 is derived from the first few pitches of the plainsong itself. These two lines open the transition between Act I/2 and I/3, which becomes the germinal opening of the Second Taverner Fantasia. Further derivations of the Taverner music are:



EXAMPLE 3.2.3 Taverner 'Death' chord.
Relationship to Taverner's 'In Nomine'.



EXAMPLE 3.2.4 Taverner I/4, bars 1-3.
Comparison with Taverner's 'In Nomine'.

The so-called 'Death' chord, shown in Example 3.2.3, is the symbol of the whole Taverner obsession which recurs persistently in Davies' works. Its whole tone nature is parallelled in the descent from E to B^{b} in the treble line of the 'In Nomine'. Finally, Example 3.2.4, which opens the opera and is used as a basis for transformations in Act I/4, is again derived from the treble line, this time in retrograde inversion.

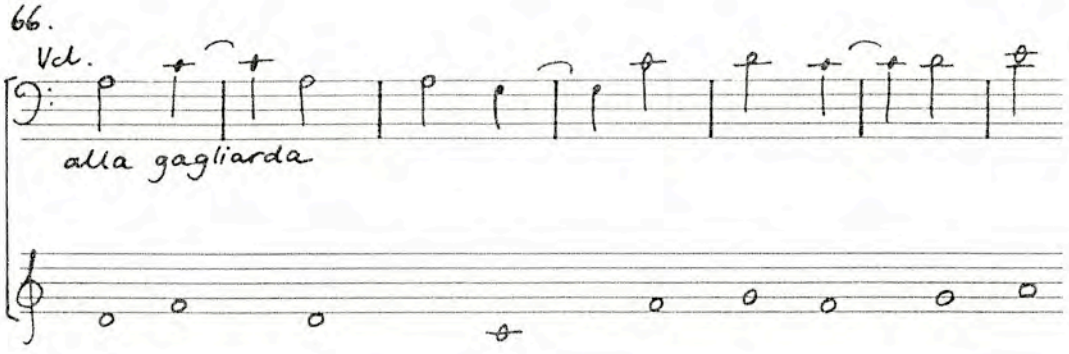
In this case, parody is using borrowed notes in a new context. The shape and character of the original have been distended by transformation, thus rather obscuring the aural link with the older music. Nevertheless, this is true parody in the renaissance mode. It is not necessary for the borrowed music to be clearly discernible; only to be the basis of a new composition. The aim is a 'fusion of old and new elements'. Transformation processes act as a catalyst in this fusion. By controlling the complexity of the process and the timing of its occurrence, the composer controls the impact of the parody. The extracts shown in Example 3.2 were transformed at the pre-compositional stage. Various factors influence the degree to which an aural link with the 'In Nomine' is perceived. These include:

(a) Register. Octave displacements obscure intervallic patterns.

(b) Direction. Retrogrades here are harder to identify than primes or inversions; inversions are harder than primes.

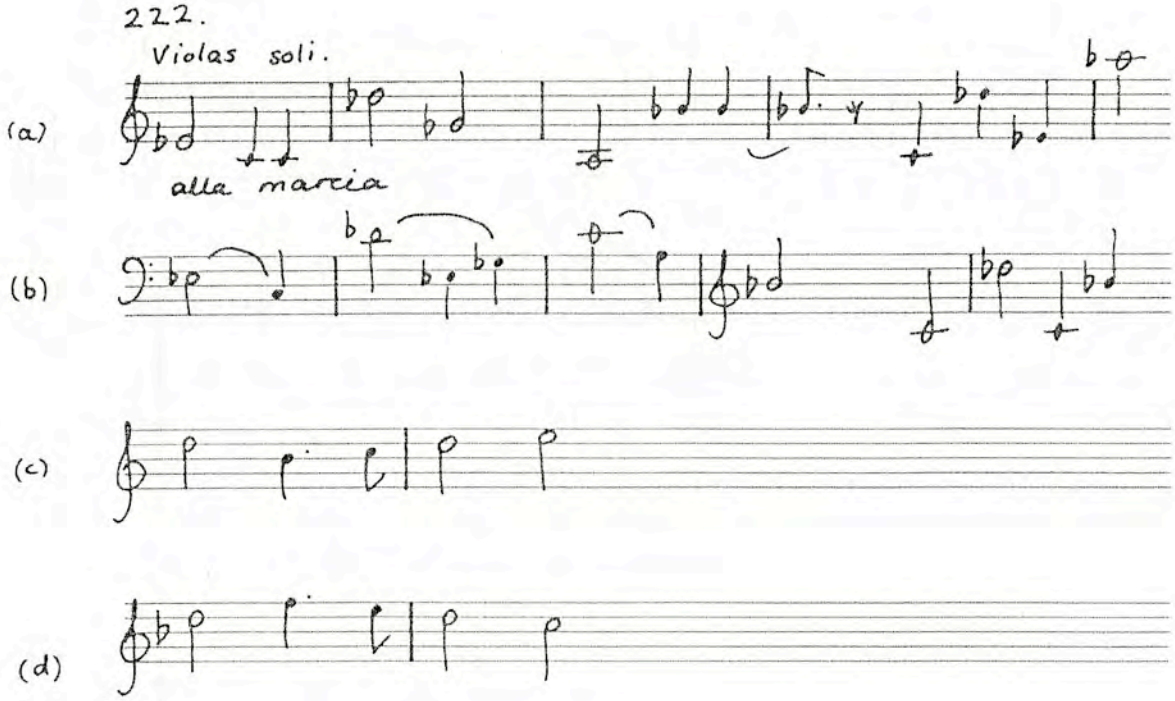
(c) Mode of presentation. Example 3.2.3 employs a chordal, rather than a linear mode, and consequently reflects only harmonic properties of the 'In Nomine'.

Further illustration of this interaction between transformation and parody may be found in the dances of Act I/3. Here, stylistic as well as purely musical parody is evident. Examples 3.3 and 3.4 show parts of two dances - a galliard and a march. Both themes can be seen to have developed from the original 'In Nomine', the galliard from the plainsong, and the march from the treble line. Each is using borrowed material in a context other than originally intended (which itself introduces an element of discord). The levels of transformation operating to reach the parody from the original vary. In Example 3.3 the level is very basic; a transfer rather than a transformation. The notes of the plainsong become the notes of the galliard:



EXAMPLE 3.3 Taverner I/3, bars 66-72 (cello). Derivation from 'In Nomine'.

In Example 3.4, however, the march music is at a further remove from the original. The four stages in its evolution, as shown, are evidence of transformation on a higher plane, and thereby of a more subtle parody:

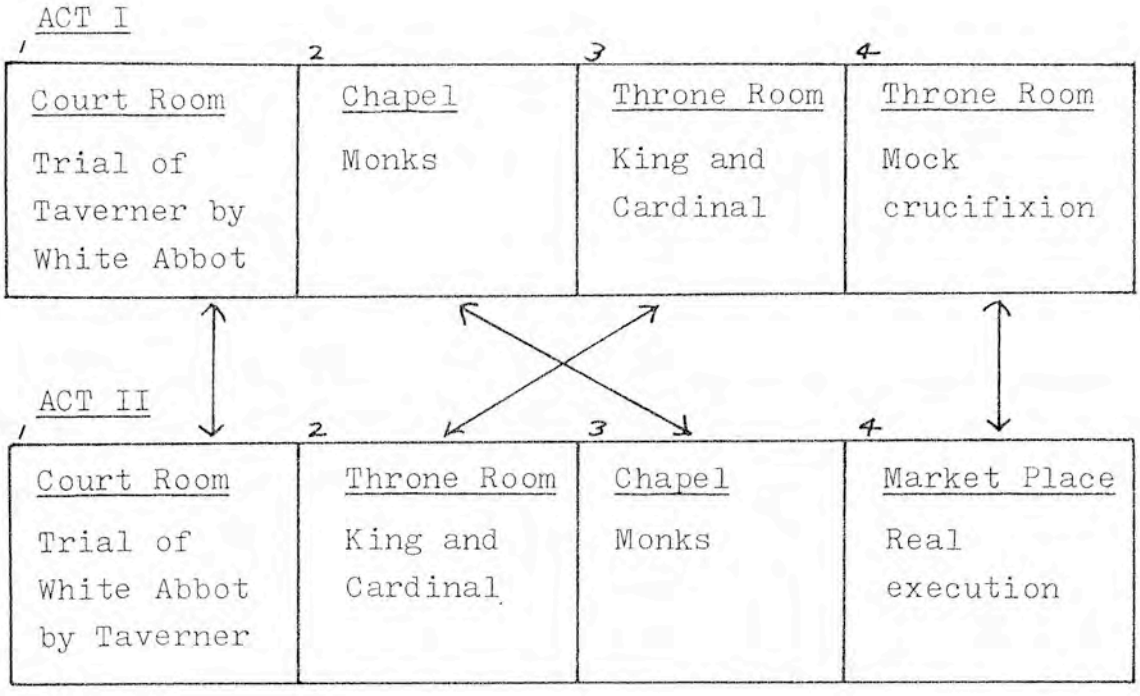


EXAMPLE 3.4 Taverner I/3, bar 222 (violas). Stages in transformation from 'In Nomine' treble line.

Most simply, the march is a parody of the cello line from the preceding transition (b). This, in its turn, is derived from an inversion of the 'In Nomine' treble line, (c) and (d).

Before entering the field of large-scale transformation systems in Taverner, mention must be made of other uses of parody. Parody governs, as well as localised musical events, the opera's basic formal plan. The two Acts are each divided into four scenes. Parts of the

Second Act are designed to be parodies of the First, and vice versa. Example 3.5 shows these interrelationships:



EXAMPLE 3.5 Taverner Formal plan.

The Chapel and Throne Room scenes in each Act imitate rather than parody each other. Similar events take place in each, and there are close musical parallels. The two outer scenes, however, are clearly related through parody. The stage directions at the opening of Act II require that

> .... the actors throughout this are somnambulistic, with jerky movements, as in an early cinema film. The whole is conceived as a parody of Act I scene 1.

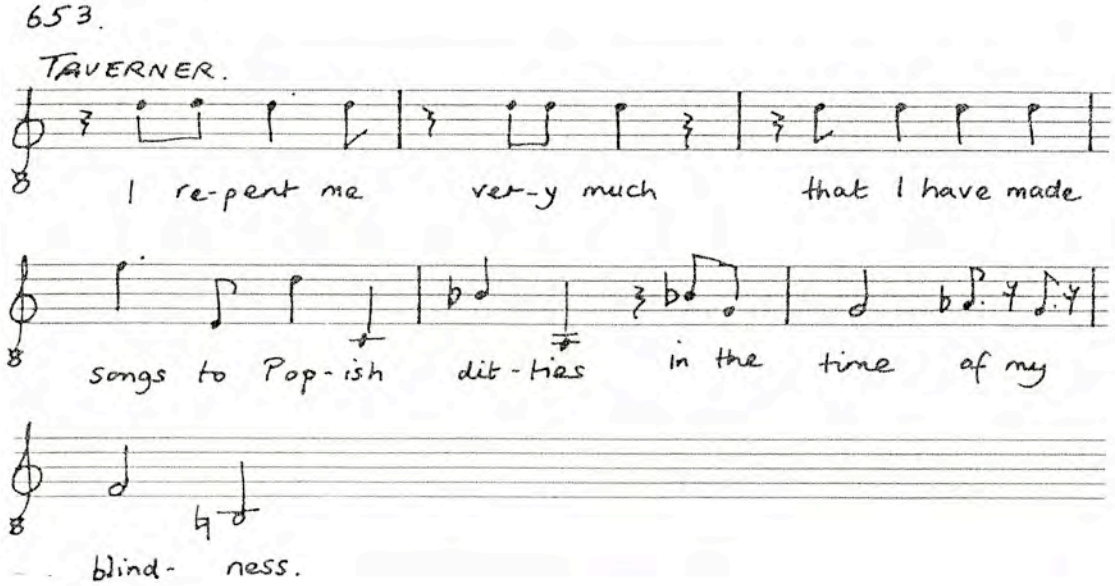
The sequence of events is virtually the same in both Court Room scenes: a succession of accusation,

defence, evidence and comment. The irony of the role reversal is emphasised in Act II/1 by a gross distortion of the earlier Court Room scene. The music is accelerated, and the full-bodied orchestral texture replaced by percussion and high wind. Taverner's accusations are made in a mechanical chant similar to the dogmatic interruptions of the Council, indicating his dehumanised state. Individual events are now drastically shortened, and most of the pomp and ceremony omitted. It is, in fact, a mockery not only of the earlier trial (which was farcical enough), but of Taverner himself and his unfortunate state.

In contrast, the two execution scenes are a parody in reverse. The resulting psychological impact is different, the mock crucifixion being seen as a forewarning rather than a mockery.

There are also examples in the music of parody in the satirical sense, often to make a dramatic point. This is parody in accordance with the first of the Grove definitions cited above. For example, the original Taverner music has a peculiarly astringent quality when used in Act II/3. As the White Abbot and the monks are led out of their monastery by soldiers, they sing: 'He that cometh in the Name of the Lord.....'. Being Taverner's own setting, it is doubly telling, as it is he who has ordered their imprisonment. Another instance is the climax of Taverner's 'confession' in Act I/4. He utters his false words of repentance to the notes

of his own music, defiling both them and, symbolically, his creative self:



EXAMPLE 3.6 Taverner I/4, bars 653-659.

Like parody, transformation exists on many levels in Taverner. Change and movement are of the essence: 'process' rather than 'product'. Together with parody and symbolism, transformation governs everything from large formal structures to brief gestures within scenes. Musical transformations often act in parallel with dramatic and symbolic transformations. Act I/4 will be examined in detail here as it is especially representative of this.

In this scene, the Jester, alias Death, gains his first command over Taverner and brainwashes him into

'confession'. Taverner moves from suspicion at the beginning, through doubt and confusion, to rejection of the Church and all its trappings. This culminates in a melodramatic and unconvincing testimony of new faith. Accompanying these events are complex set transformations in the music, and various symbolic acts, aside. The former effectively probe beneath the surface of the drama, while the latter give visual clarification above the surface. Example 3.7 demonstrates this pattern of dramatic, symbolic and musical events.

Each event is effected by a 'transforming agent'. In dramatic events the agent is the Jester, alias Death; in symbolic events it is fire; in musical events it is a system of expansion of duration and interval.

By close interlinking of the elements of the drama in this way, a synthesis of the dramatic whole is approached. The musical transformation is not continuous throughout the scene, but repeatedly applies the same principle to a fixed set. A complete analysis of every such occurrence would be academic and unnecessary; an examination of selected parts, however, will clarify the method and its relation to the drama.

The first 140 bars show a three-part structure during which, through a process of transformation, a set becomes its own inversion. The eight-note set, in the woodwind, is subjected to a systematic increase in interval and duration. The starting notes of each set are taken from successive notes of the first set; thus the set which

Taverner I/4 TRANSFORMATIONS

DRAMATIC	SYMBOLIC	MUSICAL
Jester urges Taverner to 'confess!'		repeated transformations of an eight-note set.
91		
Monks hold Taverner's soul as a white dove.	a white dove is strangled and put in a furnace.	
54		
Jester continues his persuasion.		
140		
Taverner and Jester both pour scorn on the Catholic Church.	Catholic articles fed to the furnace.	
467		
Street Passion Play.	Rose becomes Virgin Mary.	
653		
Taverner's 'conversion'; his testimony of new faith.	white dove has become black raven.	transformation stops: 'conversion' is complete.

EXAMPLE 3.7 Taverner I/4. Transformations.

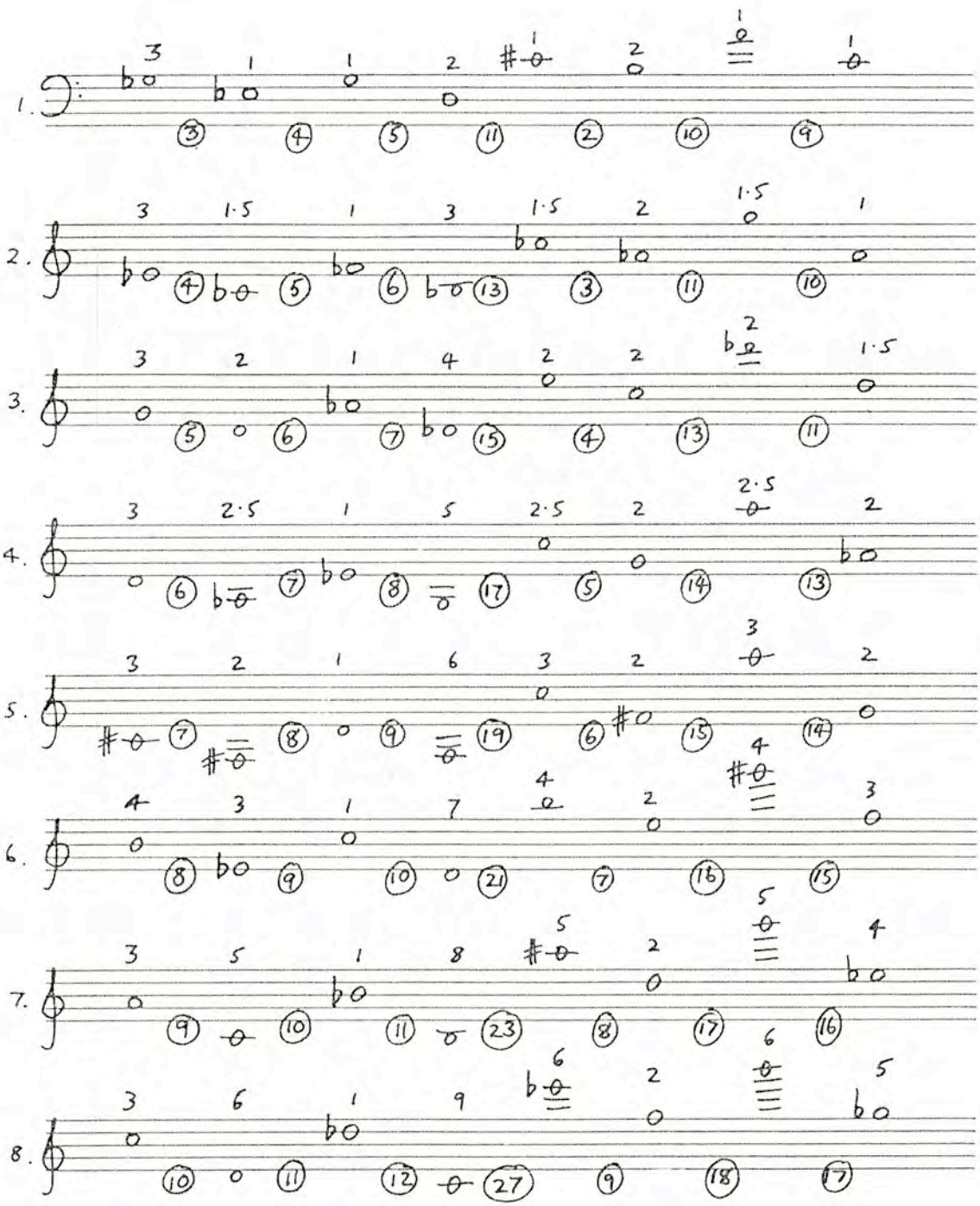
begins $G^{\flat}$ $E^{\flat}$ G D .... gives rise to sets beginning on $E^{\flat}$, G, D and so on. This is the method most commonly used by Davies for generating sets. Occasionally the sequence of increments is slightly altered to avoid octaves or repeated notes. Example 3.8 shows the sets in the first of the three sections. Intervals are shown in their original registers, and this results in each interval increasing in successive sets.[1]

On reaching the eighth set of Example 3.8, the extremely widely spaced intervals are streamlined as the second section begins. In this section, shown in Example 3.9, there is less movement than previously, and fewer transformations. This more gradual process is reflected in the drama: the action is halted for a few moments as the fate of Taverner's soul is symbolically held in the balance. By the fourth set of Example 3.9, the line has become an exact inversion of the original one at the opening of Example 3.8. It is then transposed down a tritone in readiness for the third section.

Not unexpectedly, the third is a mirror image of the first: the same process in inversion (Example 3.10).

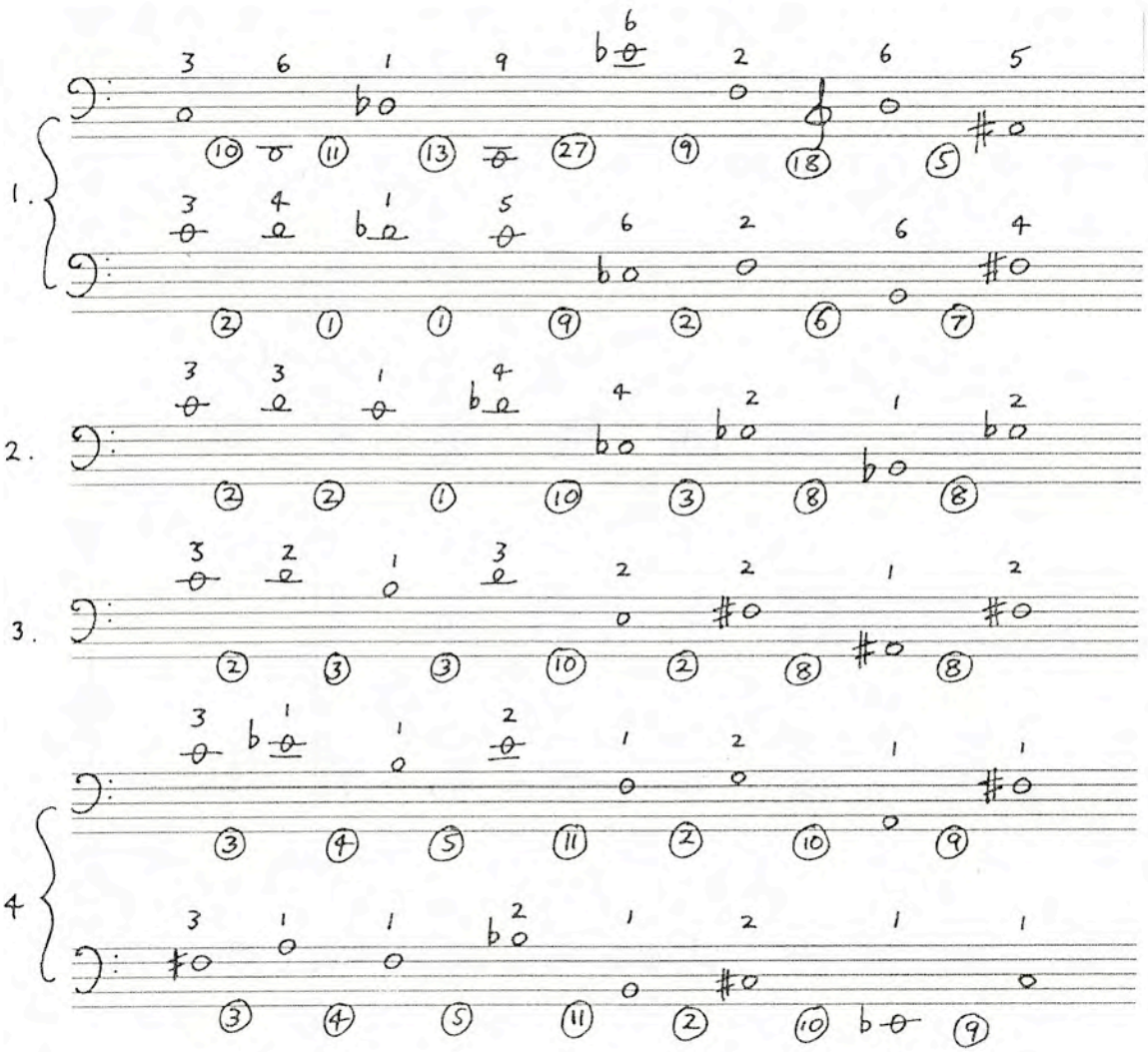
---

1. In Stephen Arnold's analysis (British Music Now, London, 1975, pp.79-83) he ignores some register placements and takes account of others, producing a system wherein some intervals increase and others decrease. Such inconsistency would seem unnecessary; a logical system of constant increments can be seen in the notes as written.

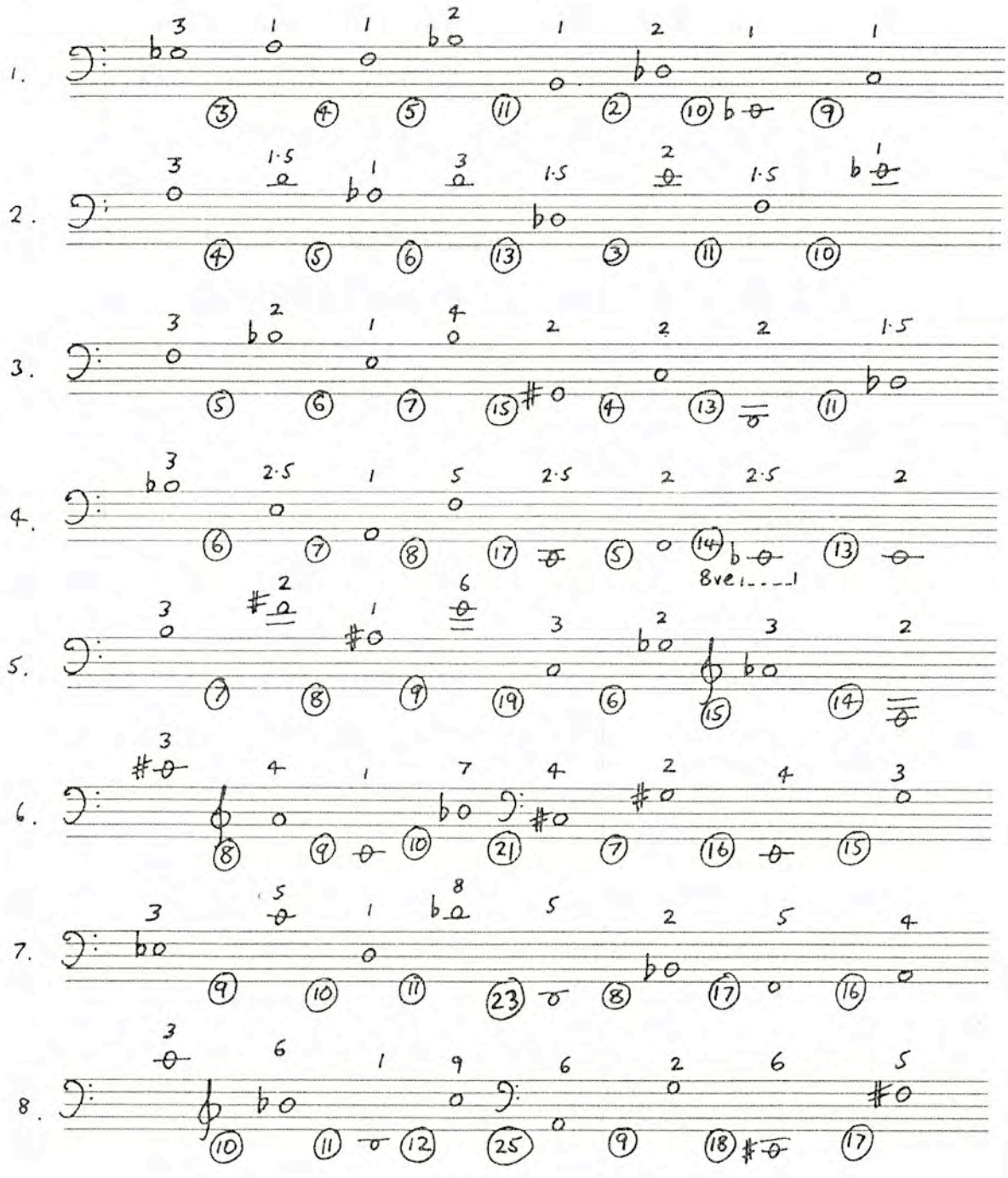


3 = duration (3) = interval

EXAMPLE 3.8 Taverner I/4 bars 1-53.
Woodwind sets.



EXAMPLE 3.9 Taverner I/4 bars 54-90.
Cello sets.



EXAMPLE 3.10 Taverner I/4 bars 91-140.
Cello sets.

The process is a simple one, and is ideal for generating lengthy periods of music. As not only intervals but also durations increase, the arrival at the inversion takes some time.

There is inbuilt musical tension in something which is repeated but always slightly different, and an inevitable sense of expectancy. In Act I/4 this expectancy is maintained throughout, as the same transformation process is applied many times. A relative stability is achieved only in the final moments of the scene when the set statements, although still transposed on to each set note in turn, remain unchanged in length and shape. These musical events effectively mirror the dramatic ones. During the whole scene a struggle is taking place for Taverner's soul. One moment he is swept close to the edge of persuasion, then he is drawn back by an opposing force (his father, Rose Parrowe, his own conscience). Finally he is corrupted. The transformation is complete: with the music stable and static he utters his words of new faith (bar 653).

To misunderstand the function and timing of this transformation is to misunderstand one of Davies' most basic compositional techniques. One writer has complained that in Act I/4

> The brief amount of stage time given to Taverner's repentance makes the last Act almost incredible. A dénouement may well be quick, but to be credible it needs to be prepared and prolonged sufficiently to make it memorable.[1]

---

1. M.A. Scheppach: 'The Operas of Michael Tippett', Chapter III. Rochester, 1974, p. 232.

The last Act is indeed incredible, and intentionally so; it is an extension of the farce of Taverner's false confession. That the repentance has been adequately prepared is shown in the description of the transformation process above. But perhaps most importantly, it is the brevity of the confession in itself that makes the essential dramatic point. Like the short, jaunty coda to the Second Taverner Fantasia, and the snatched chords that end the First Symphony, this moment is a mockery of the preceding intense build-up, avoiding any sense of achievement or solution. Such an implication would be inappropriate here both in musical and in dramatic terms, but it is also inappropriate to Davies' music in general. An obvious solution implies a problem easily overcome - something which Davies is reluctant to admit is possible for a composer of any worth today.

How far the problems of writing a contemporary opera have been overcome in Taverner must ultimately be decided at the stage performance. The intricacies of the musical transformations, the subtle parodies and vivid symbolism are elements that must be appreciated as a dramatic whole. For Davies, apart from the discipline of adapting his compositional techniques to the medium of theatre, the writing of Taverner has been the realisation of an obsession, providing a wealth of ideological and musical material which is manifest in later works.

CHAPTER IV

SECOND FANTASIA
ON AN IN NOMINE OF JOHN TAVERNER

Having completed the first Act of Taverner, Davies felt that much of the orchestral music within it, particularly in the transition passages, was in need of symphonic expansion - something not possible within the confines of a drama. Hence the Second Fantasia on an In Nomine of John Taverner (hereafter called the Second Taverner Fantasia), which serves not only as a further meditation upon the sixteenth-century 'In Nomine', and as an extension of principles within the First Taverner Fantasia, but also as Davies' first large-scale confrontation with sonata and rondo forms. Important too is the fact that the second Act of Taverner, unwritten at the time, was in its turn to draw on material from this fantasia.

It is one of those pieces, like the 'Motet for Orchestra', Worldes Blis, which another composer may well have called a symphony. The term 'symphony', however, is not one taken lightly by Davies, and was kept in reserve until a much later work. The meaning and appropriateness of the term 'fantasia' as applied to this work is one subject worthy of consideration.[1]

The Second Taverner Fantasia is a one-movement work for orchestra lasting thirty-nine minutes. The composer has identified within it thirteen sections, discussed briefly in his programme note synopsis.[2] More generally, though, these sections group into three

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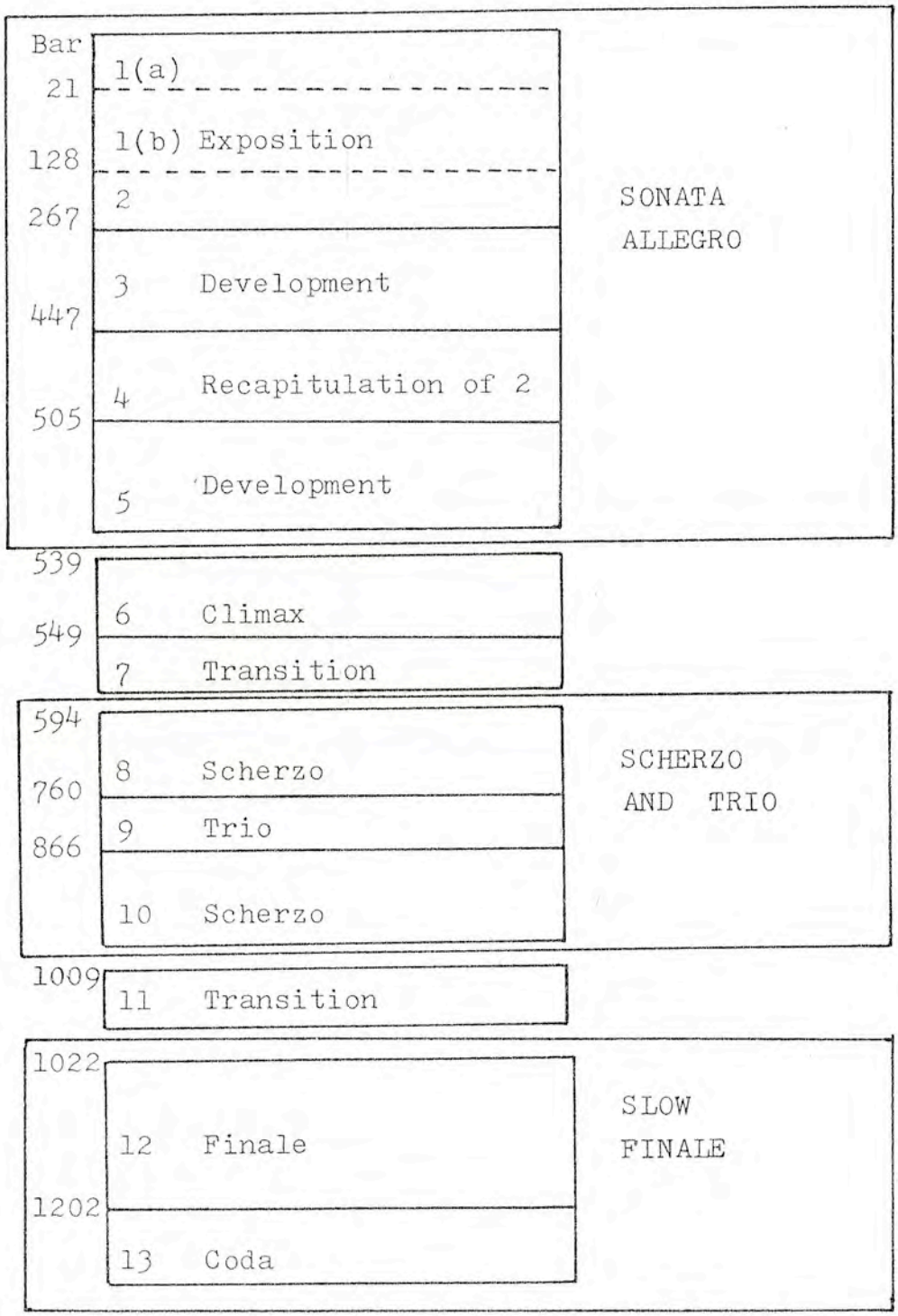
1. See pp.142-143 for a discussion of the terms 'symphony' and 'fantasia' as used by Davies.

2. Given in Griffiths: op. cit., pp. 141-144.

large areas: a sonata allegro, a scherzo and trio, and a slow finale. Incorporating Davies' sections, the piece may be summarised thus:



EXAMPLE 4.1 Second Taverner Fantasia.
Formal structure.

For convenience, sections will be referred to according to this numbering.

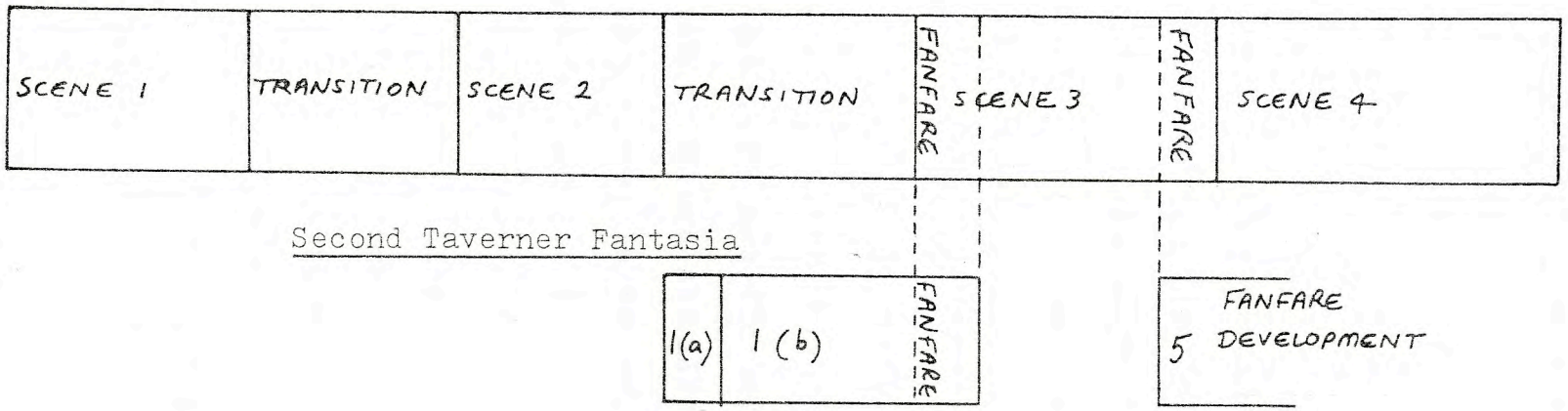
It is significant that, unlike the opera and the First Taverner Fantasia, this work limits direct quotation from the borrowed music, and takes as its starting point material that is already transformed. The Second Taverner Fantasia, it seems, is in mid-development of an idea, not the initiator of it. The First Fantasia is indeed upon an 'In Nomine' of John Taverner; the Second Fantasia is also upon a whole range of ideas beyond that 'In Nomine'.

Here attention will be focussed initially on two subjects: the musical and structural relationship between the opera and the fantasia, and techniques employed in the construction of large-scale musical events. Then later sections of the piece will be discussed with reference to processes of transformation, and the implications of such processes for the control of harmonic tension and the shaping of closed forms.

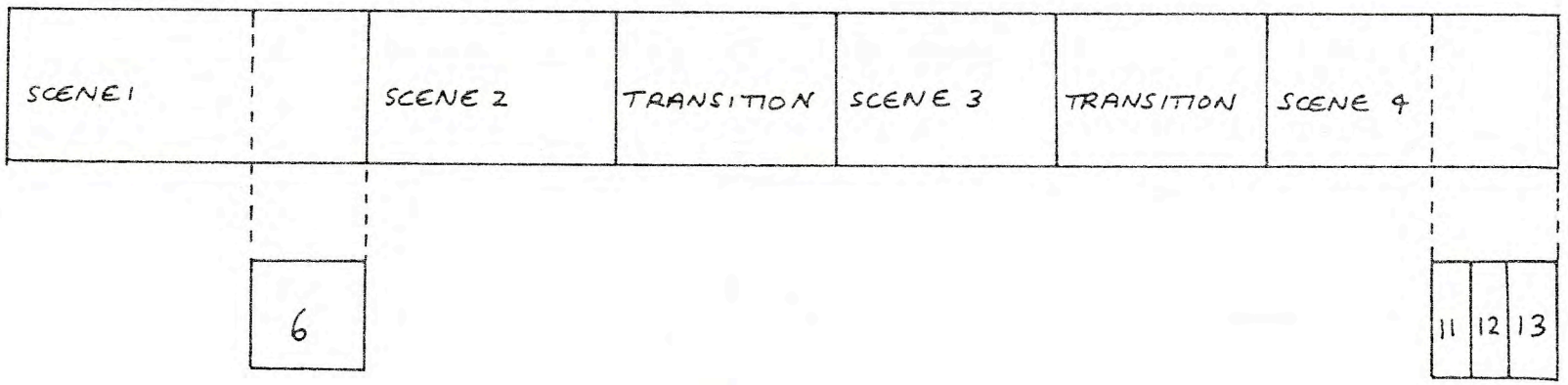
Some of the material borrowed from Taverner was transferred intact to the fantasia, other material forming a core of motives for expansion. Example 4.2 shows the location of these borrowings within the opera. Section 1 in the fantasia, together with its brief concluding fanfare, is an exact quotation of the transition passage between Act I/2 and I/3 and the brass music which follows, heralding the arrival of the King. However, when similar brass music returns at the end of the scene to mark the King's departure, Davies uses it in the fantasia as a starting point for development (section 5).

TAVERNER

Act I



Act II



EXAMPLE 4.2 Taverner and the Second Taverner Fantasia
Common material.

In the second Act of Taverner, written after the Second Taverner Fantasia, Davies uses the climactic central section of the orchestral work, section 6, for the equally dramatic postlude to scene 1. This swirling woodwind texture with accompanying brass and string chords had been employed briefly in the First Fantasia (at Figure 20) and hinted at in the closing bars of Taverner, I/4 (bar 751), but now appears as a fully developed and powerful orchestral texture: in the Second Fantasia serving the purpose of consolidation of harmonic material up to that point; in the opera acting more as a final flash of colour reflecting the intensity of the preceding visual symbolism.

A further link between the two works is their endings. The long, slow finale of the fantasia, nearly all for strings, becomes the last part of the opera, commencing halfway through Act II/4. In the fantasia this music stands alone; in the opera it is the backcloth for the emotive words of Taverner and the White Abbot, leading up to the Abbot's execution.

In these parallels between the Taverner works, some of Davies' methods of selecting material become apparent. The transition between Act I/2 and 1/3, opening with a concentrated motivic statement derived from the 'In Nomine', followed by a gradual flowering of ideas, is eminently suitable for the opening of the Second Fantasia: more so than the earlier transition between Act I/1 and I/2, which is short and fast with fleeting reference to motives rather than consistent manipulation of them. The choice of the 'fanfare' music as a contrasting

additional subject within the sonata form structure is also significant. In the opera it is merely a brief flourish, but in the fantasia Davies exploits the difference in character and orchestral colour between it and the preceding music with a full-scale development in section 5.

There are two distinct methods used by Davies in the treatment of the Taverner 'In Nomine' music. Firstly, in its unadulterated state it appears as quotation, superimposed upon the other music rather than integrated with it, as a cantus firmus in long notes. The two outstanding instances are the oboe cantus at bar 415, and the violin 'molto vibrato' cantus at bar 633. Distanced from the rest of the musical activity, there are suggestions of parody at these points[1], or perhaps a flashback to the work's origins; characteristically an interpretation is left to the listener.

One possible effect of such a cantus is to distort time. This is especially apparent in the violin 'molto vibrato' cantus, where the 'In Nomine' plainsong is divided into fragments. Each fragment appears during one of the interludes separating statements of the scherzo music[2], and is therefore temporally distinct. In the final interlude, all the pitches of the plainsong are drawn together, as in Example 4.3:

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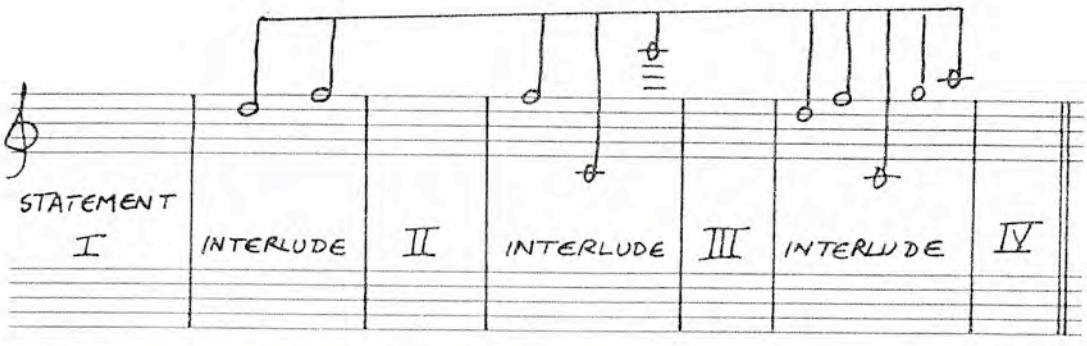
1. Parody in the ironic sense; see definition (i), p. 65, above.

2. For details of structure, see Example 4.14, below.



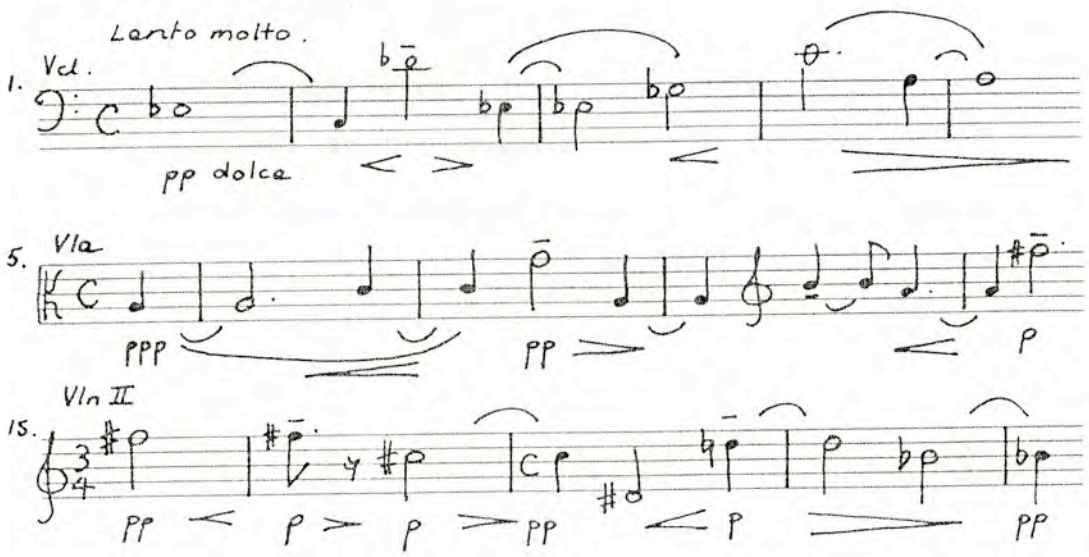
EXAMPLE 4.3 Second Taverner Fantasia, section 8. Temporal separation of cantus fragments.

The listener is required to hear, on one level, events progressing slowly over a long time span (the cantus); on on another level, rapid transformations within each scherzo statement; and on still another level, the effect of the music as it occurs chronologically - statements, interludes and cantuses. Additionally, in order to perceive the cantus as continuous, he must use memory to link its fragments.

More pertinent to the main fabric of the music is Davies' second method of treating the Taverner 'In Nomine'. It is not used in its original form, but transformed into new sets and motives. The process involved in the manipulation of these ideas is usually one of two kinds: systematic pitch transformation, or simple set transposition. A clear illustration of the latter is found in section 1 of the fantasia.

Section 1(a) presents three motivic ideas, each of which is developed throughout the piece. All are

derived from the 'In Nomine'. The first extract shown in Example 4.4 provides the material for the greater part of section 1(b), the second is used in the 'development', section 3, and the third forms the basis of the 'fanfare' music:



EXAMPLE 4.4 Second Taverner Fantasia.
Motives in section 1(a).

In section 1(b) the strings carry most of the musical weight, as is often the case even in Davies' later orchestral works. Their contrapuntal lines are determined by a simple system of set permutation based on the first line of Example 4.4. Three groups of sets are played twice:

66.

X	Y	Z	X	Y	Z
7 sets	5 sets	6 sets	7 sets	5 sets	6 sets

EXAMPLE 4.5 Second Taverner Fantasia,
Section 1(b).

Every set originates from the 'In Nomine' treble line, or from its derivation - the first line of Example 4.4.[1]

In X, sets begin on successive notes of this derived line. Decorative or supportive material is distinguished from set material by being played pizzicato. In Y, sets begin on pitches which together form the treble line of the 'In Nomine'. Finally, in Z, sets begin on a retrograde version of the 'In Nomine' treble line. These three groups of set transpositions are shown in Examples 4.6, 4.7 and 4.8.[2]

A simple transposition process in the strings, therefore, provides most of the section's pitch material. Three other factors, however, are of particular importance in the shaping of the section: register, dynamic and density of texture.

From X to the end of Z there is a gradual ascent in register each time, accompanied by an increase in dynamic intensity. Upon reaching a peak at bar 66, X, Y and Z are repeated: again they move from low to high register, but this time each dynamic is marked up. As well as this, there is a steady addition of instruments to the orchestral texture. After bar 66, this forms an intensity curve which culminates at bar 117. The tension of this long build-up is then released by the brass and percussion 'fanfare' music.

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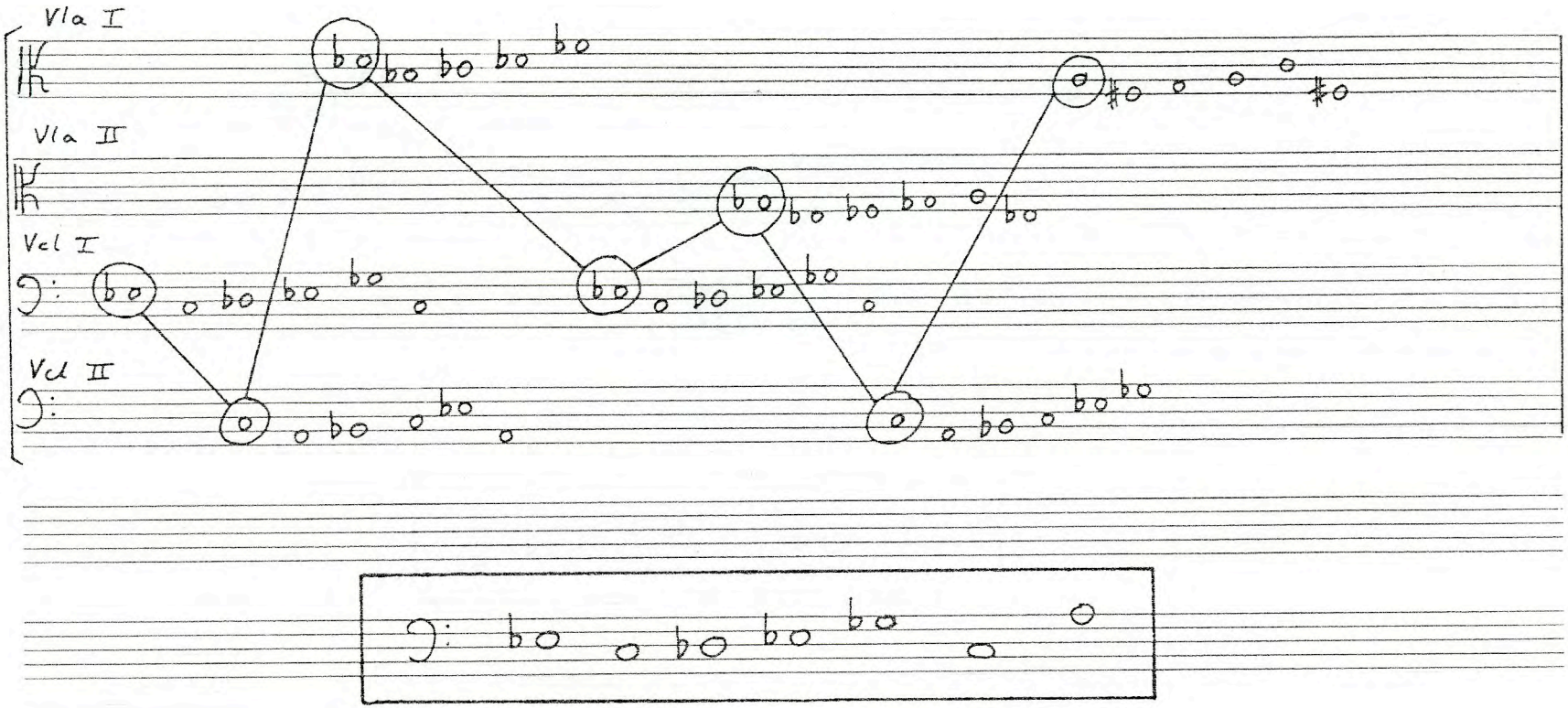
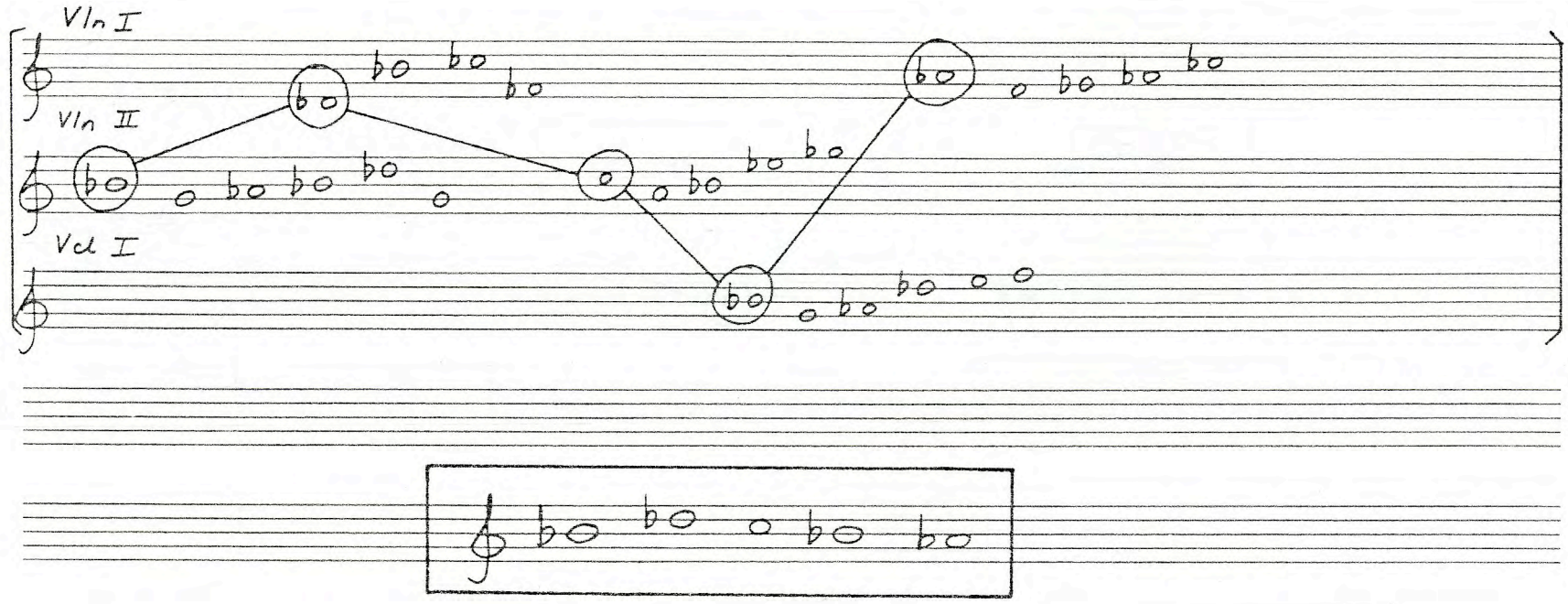
1. See Examples 3.1 and 3.2 above for manner of derivation.

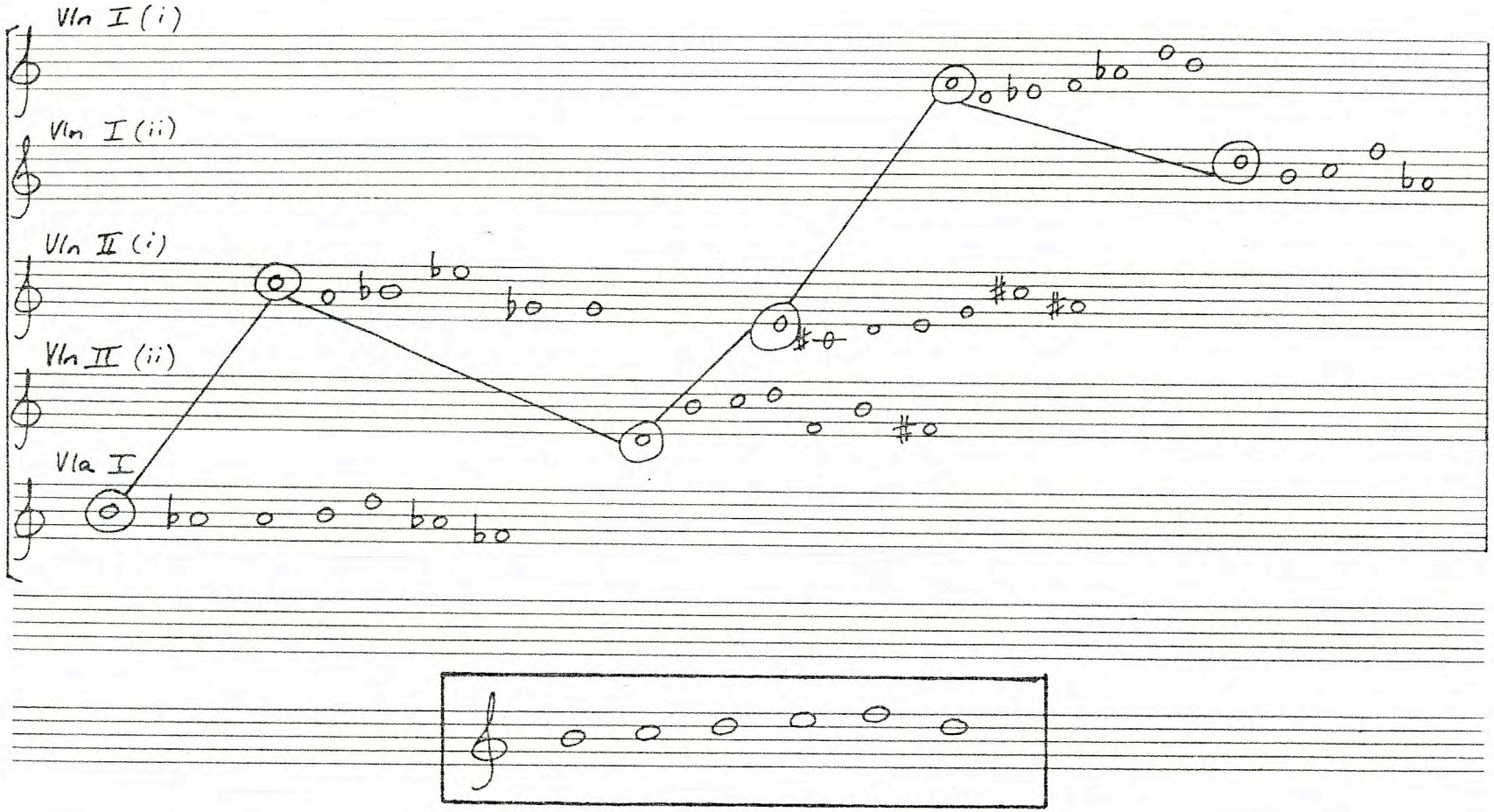
2. This technique of articulating pitch groups on different levels has been noted in Prolation - Example 2.4 above.



EXAMPLE 4.6 Second Taverner Fantasia, section 1(b), bars 1-40 and 66-86 (X groups). Set derivation and transpositions.

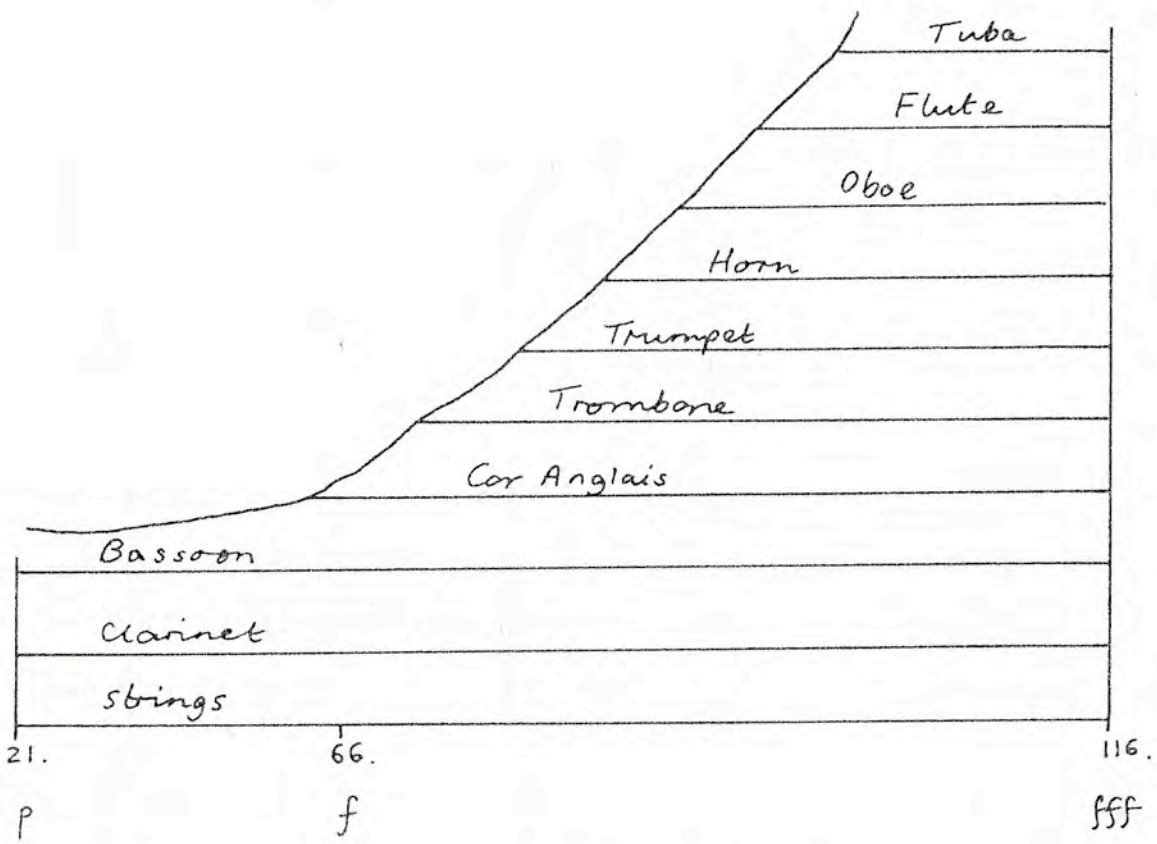


EXAMPLE 4.7 Second Taverner Fantasia, section 1(b), bars 41-54 and 87-98 (Y groups). Set derivation and transpositions.



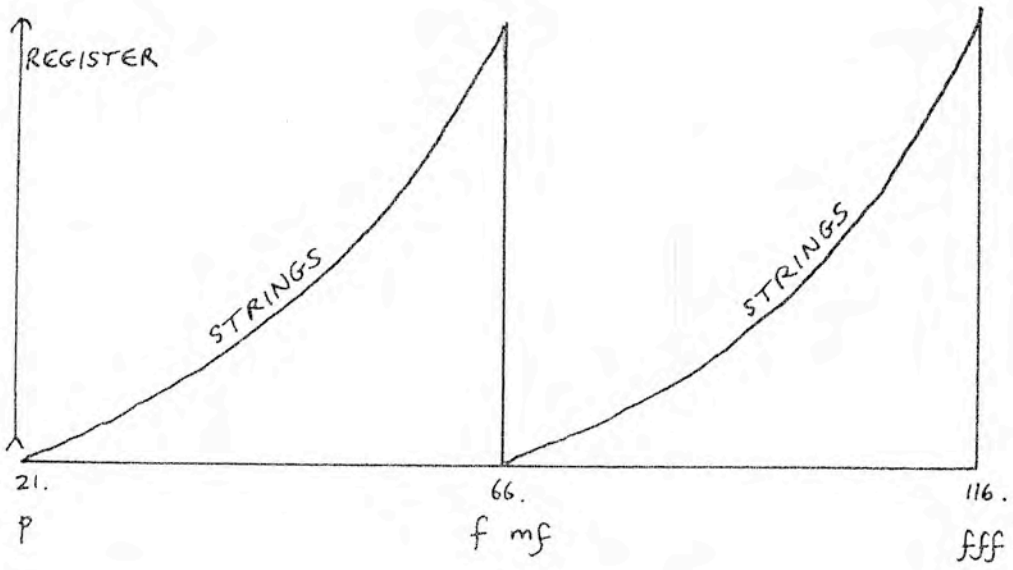
EXAMPLE 4.8 Second Taverner Fantasia, section 1(b), bars 53-65 and 99-116 (Z groups). Set derivation and transpositions.

There are several levels on which this intensity curve may be felt. On the broadest level, the whole section is experienced as one huge process of increasing dynamic and textural weight:



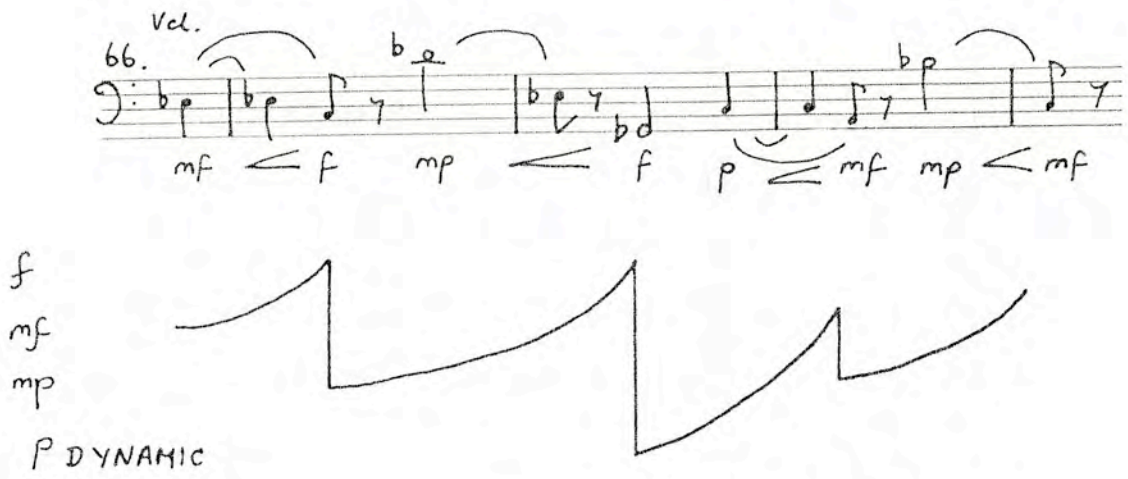
EXAMPLE 4.9 Second Taverner Fantasia, section 1(b). Intensity curve.

On another level, the listener feels the intensifying of each half of the section because of the strings' ascent in register, and also feels the greater dynamic intensity of the second half in relation to the first (Example 4.10).



EXAMPLE 4.10 Second Taverner Fantasia, section 1(b).

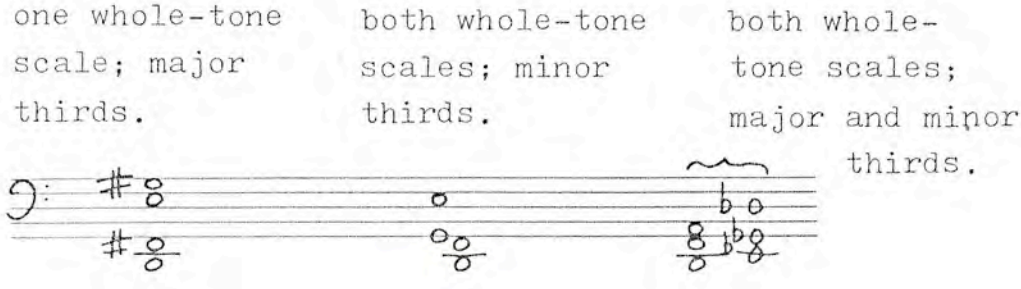
A further factor contributing to the build-up of tension is perceived on a lower level: the intensification of individual notes and phrases. This is a characteristic feature of much of Davies' music, creating an atmosphere of urgency, of moving towards a goal:



EXAMPLE 4.11 Second Taverner Fantasia, section 1(b).

This section of the fantasia displays techniques of a kind found in most of Davies' large-scale works. Moreover, it displays an easily recognisable Davies sound: 'working' music that traces an uncompromising path upwards and outwards, dominated by strings and broken abruptly at its peak by a signal from percussion or brass.[1]

At a point roughly midway through the fantasia a massive climax occurs during which the musical activity preceding it is concentrated into its barest elements and brought to a standstill. The harmonies which have emerged as significant are encapsulated in three chords:



EXAMPLE 4.12 Second Taverner Fantasia, section 6.

The chords represent, as well as a summing-up, a new beginning: the start of a development where the conflicts within and between them will be confronted and battled out. Conflicts between the two whole-tone scales, for example, between major and minor, and between

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1. For other examples see A Mirror of Whitening Light, Figures U1-X1; First Symphony, Figures 33-40 and 97-103.

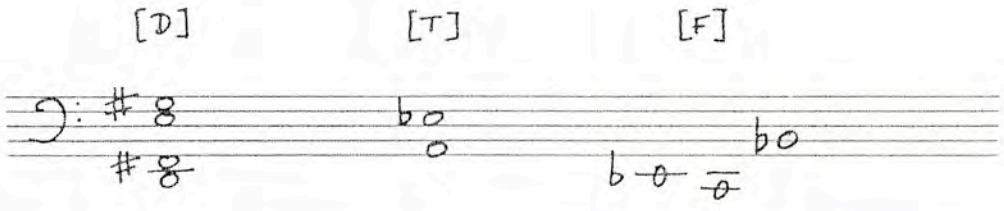
the stability of D minor (relating back to the Taverner 'In Nomine') and the persistent ambiguity of the tritone. The music up to this point has only hinted at such conflicts. Each of the germinal motives from the opening is developed separately; when contrasting harmonic elements like those above appear together they are perceived as imposed upon the surface of the music, not pursuing their interrelationships, and being quickly superseded by the continuing exploration of separate motives.

At the beginning of the 'development', section 3, for example, three important elements are present:

(a) the 'Death' chord: [D];

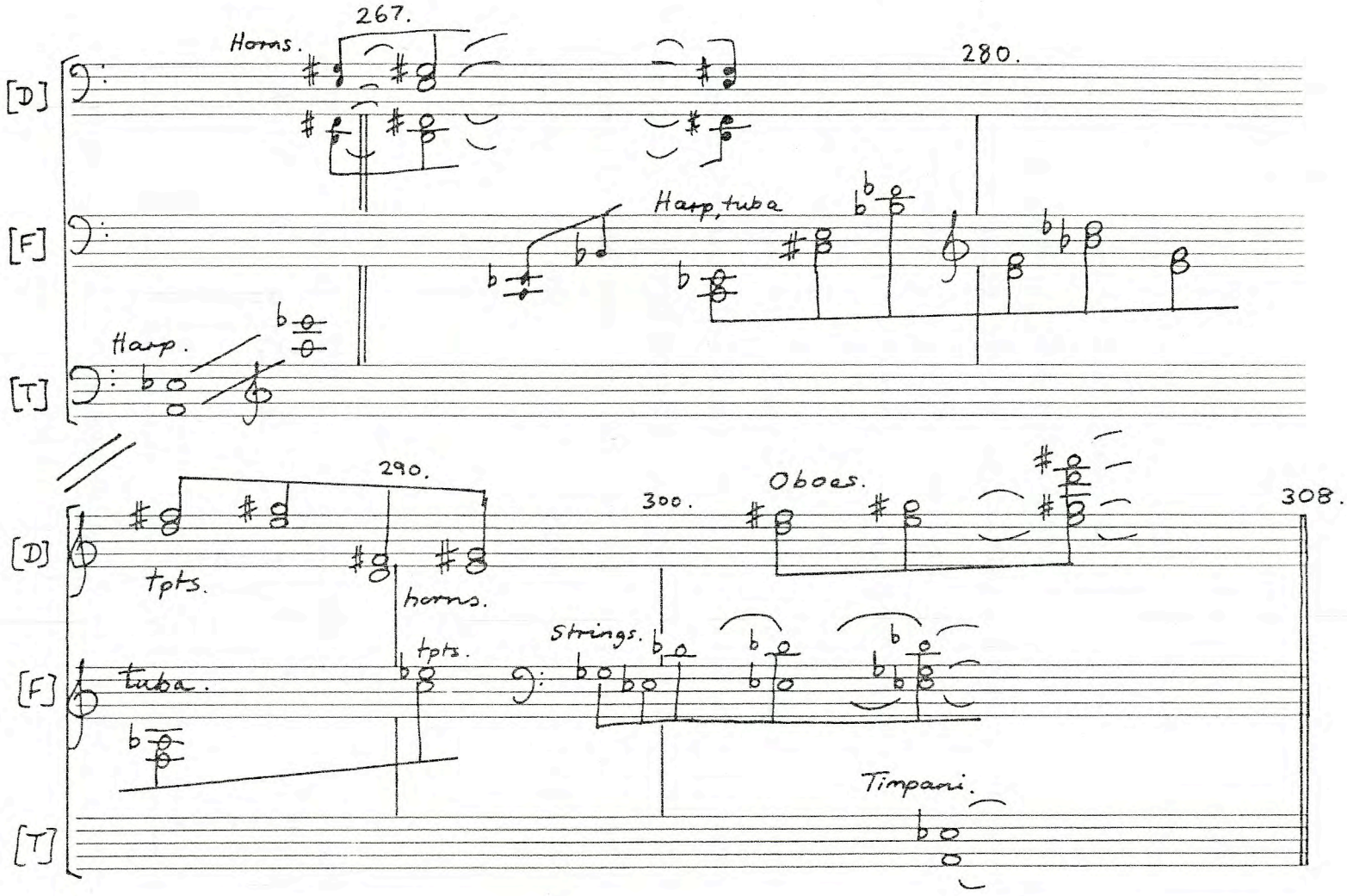
(b) a tritone of the opposite whole-tone scale: [T];

(c) the fanfare motive: [F], being the first three notes of the plainsong and the opening trumpet call of the opera:



EXAMPLE 4.13.1 Second Taverner Fantasia. Essential elements of section 3.

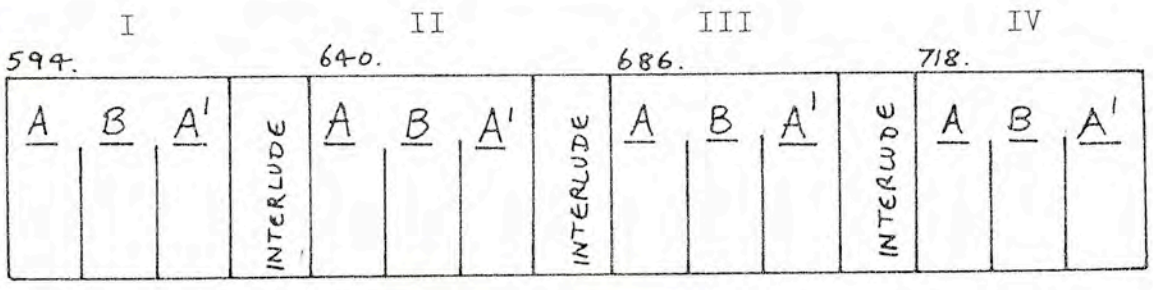
During this section, to bar 308, [D] and [F] appear independently, the tritone enclosing them at either end. Melodic development continues elsewhere, but these essential harmonies simply exist, unchanging and as yet, it seems, unaware of each other's presence (Example 4.13.2).



EXAMPLE 4.13.2 Second Taverner Fantasia, section 3, bars 266-308.
Analysis of occurrence of essential elements.

There is, in effect, too much musical material and too many changes of pace in this sonata-form structure for harmonic limits to be defined and any consolidation to take place. It could be said that the first half of the piece is an exploration of different pathways leading from a single point (the germinal first twenty bars), while the second half seeks one route into which all pathways fuse. This highlights both the synthesis and the incompatibility of the various harmonic elements involved, and forms the basis of a musical argument built on a struggle for harmonic dominance rather than on melodic linear contrast.

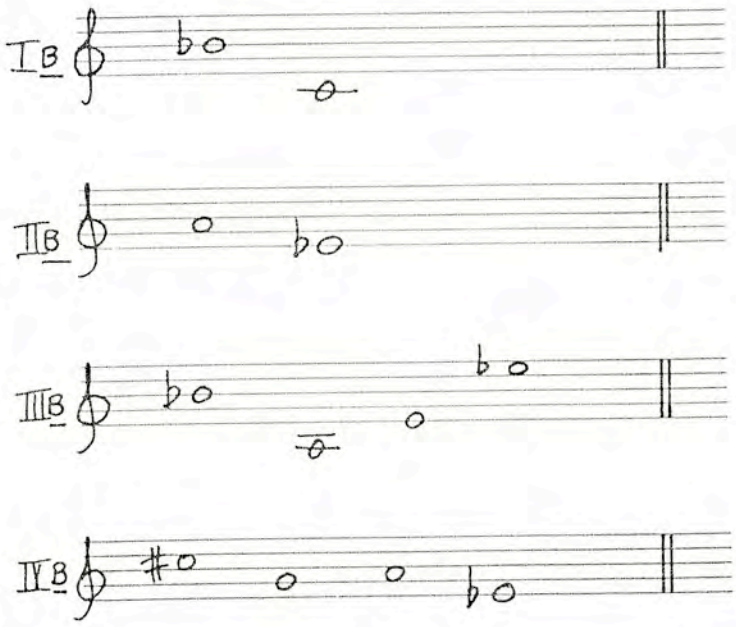
Following the climactic chords, a slow transition, foreshadowing the final adagio, introduces a large-scale tripartite structure resembling a scherzo and trio. Formally the two scherzi are identical. Four melodic statements, each in three segments, are separated by interludes:



EXAMPLE 4.14 Second Taverner Fantasia, sections 8 and 10. Formal structure.

It is difficult to know what Davies means when he says in his notes on the work[1] that in the second scherzo (section 10) the interludes are omitted. Although shorter than those of the first scherzo, they are clearly present, played on harp and pizzicato strings at bars 901, 938 and 967.

The B segments of sections 8 and 10 contain identical material, on horn and contrabassoon respectively. Their pitches, which become harmonically very important, are as follows:



EXAMPLE 4.15 Second Taverner Fantasia, sections 8 and 10. Pitch content of B segments (contrabassoon in section 10 two octaves lower).

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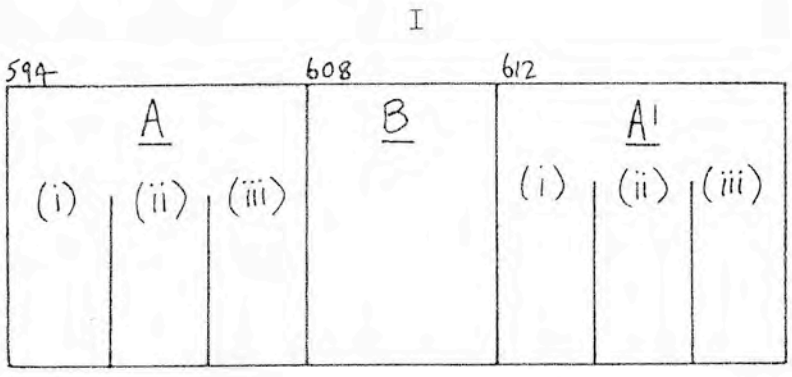
1. Quoted in Griffiths: op. cit., p. 143.

In this respect the remarks of Paul Griffiths on this part of the work are misleading. He says that in the second scherzo

> .... the first violins lead eight dynamic melodic statements separated by brief passages dominated in turn by harp and double bassoon. [1]

In referring to the interludes and the B segments collectively as 'brief passages', he fails to distinguish between their very different functions, and suggests eight statements of equal weight instead of four mirrored pairs.

An explanation of the method of melodic generation should clarify this. In section 8, the primary melodic material is shared between the woodwinds: a series of transformations occupying the A and A1 segments. In each segment, the statement is in three parts. Taking statement I as an example:



EXAMPLE 4.16 Second Taverner Fantasia, section 8. Structure of statement I.

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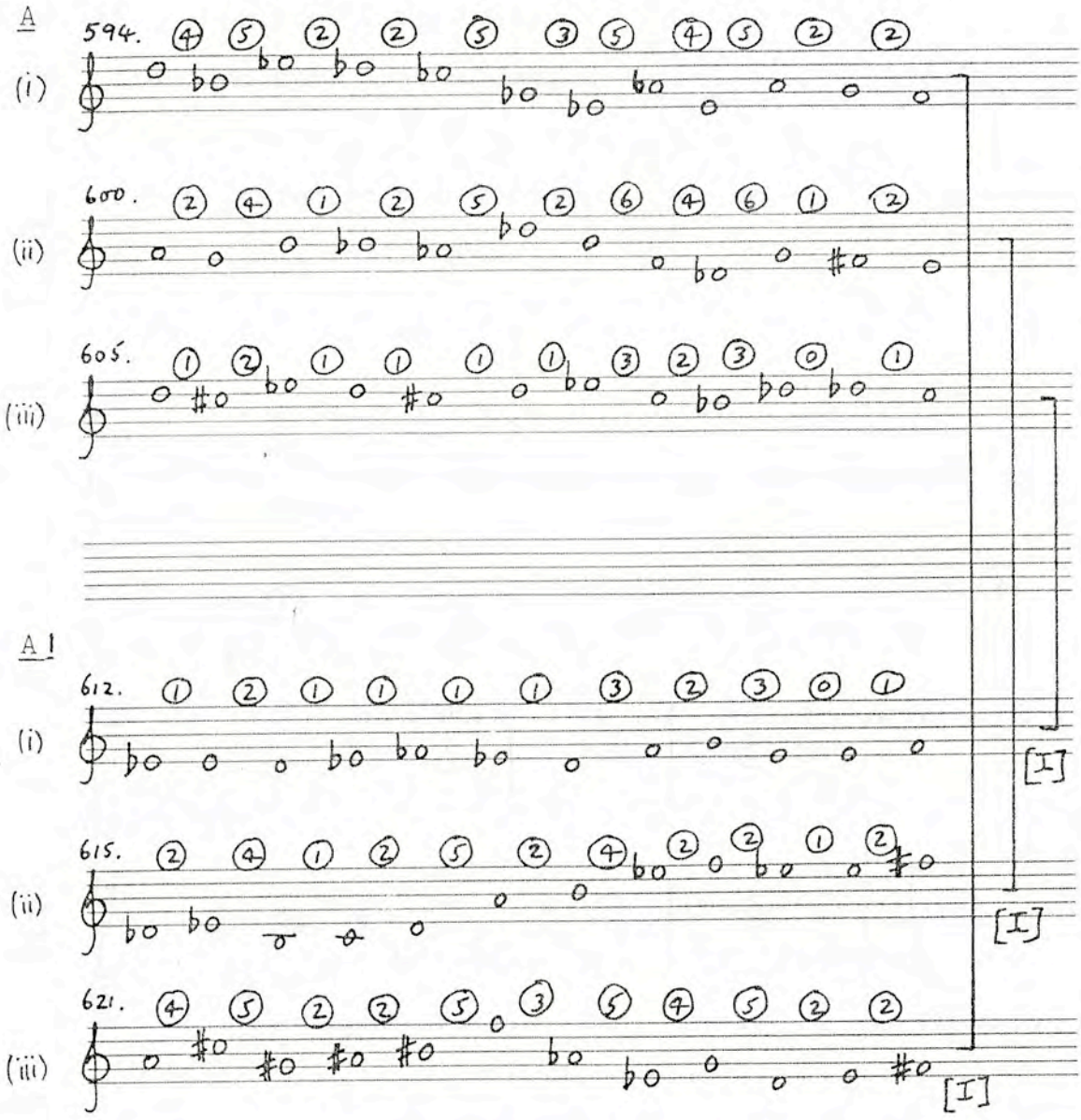
1. Griffiths: op. cit., p. 46.

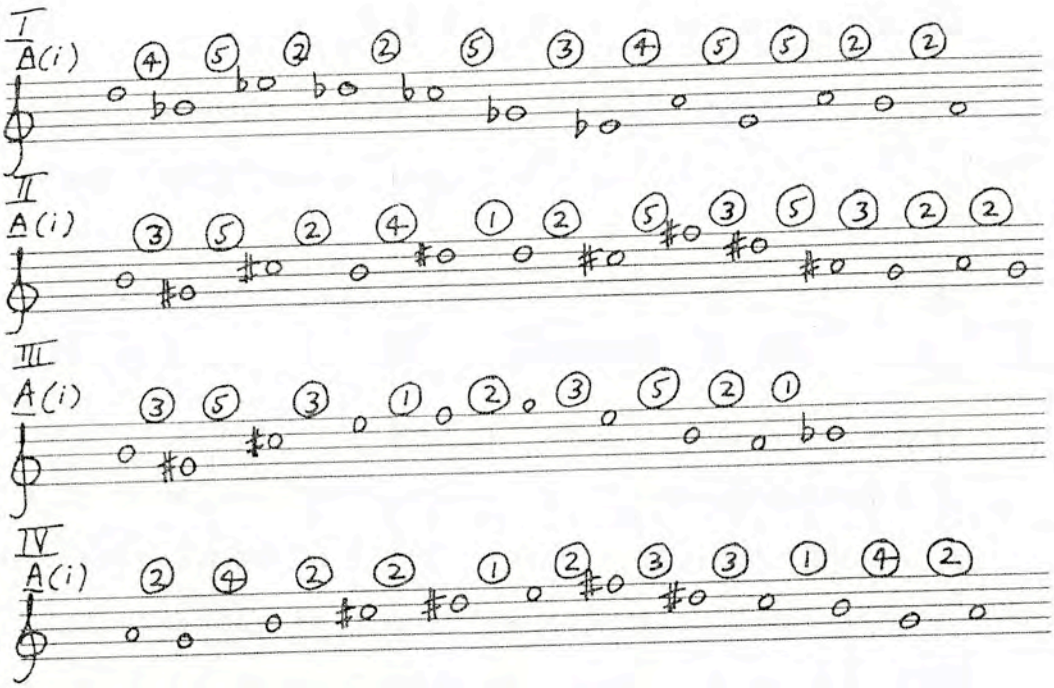
Each successive part of segment A contracts progressively in interval. In A1 the process is reversed: intervals progressively expand in a mirror inversion of A. So one simple transformation is complete: a series of pitches, A(i), becomes its own inversion, A1(iii):



EXAMPLE 4.17 Second Taverner Fantasia, section 8. Pitch transformation in A segments, statement I.
(④ = interval).

Intervals here are shown irrespective of register, for clarity.

The next statement, II, follows a similar pattern. The beginnings of a process of transformation on a larger scale are evident, too. Example 4.18 shows the first pitches of each statement. A definite contraction may be seen across each statement, sometimes a regular reduction and sometimes a gradual shifting. A certain flexibility is necessary, as a strict contraction of each successive statement would leave no leeway for contraction within the later statements.



EXAMPLE 4.18 Second Taverner Fantasia, section 8. Intervallic contraction over each statement.

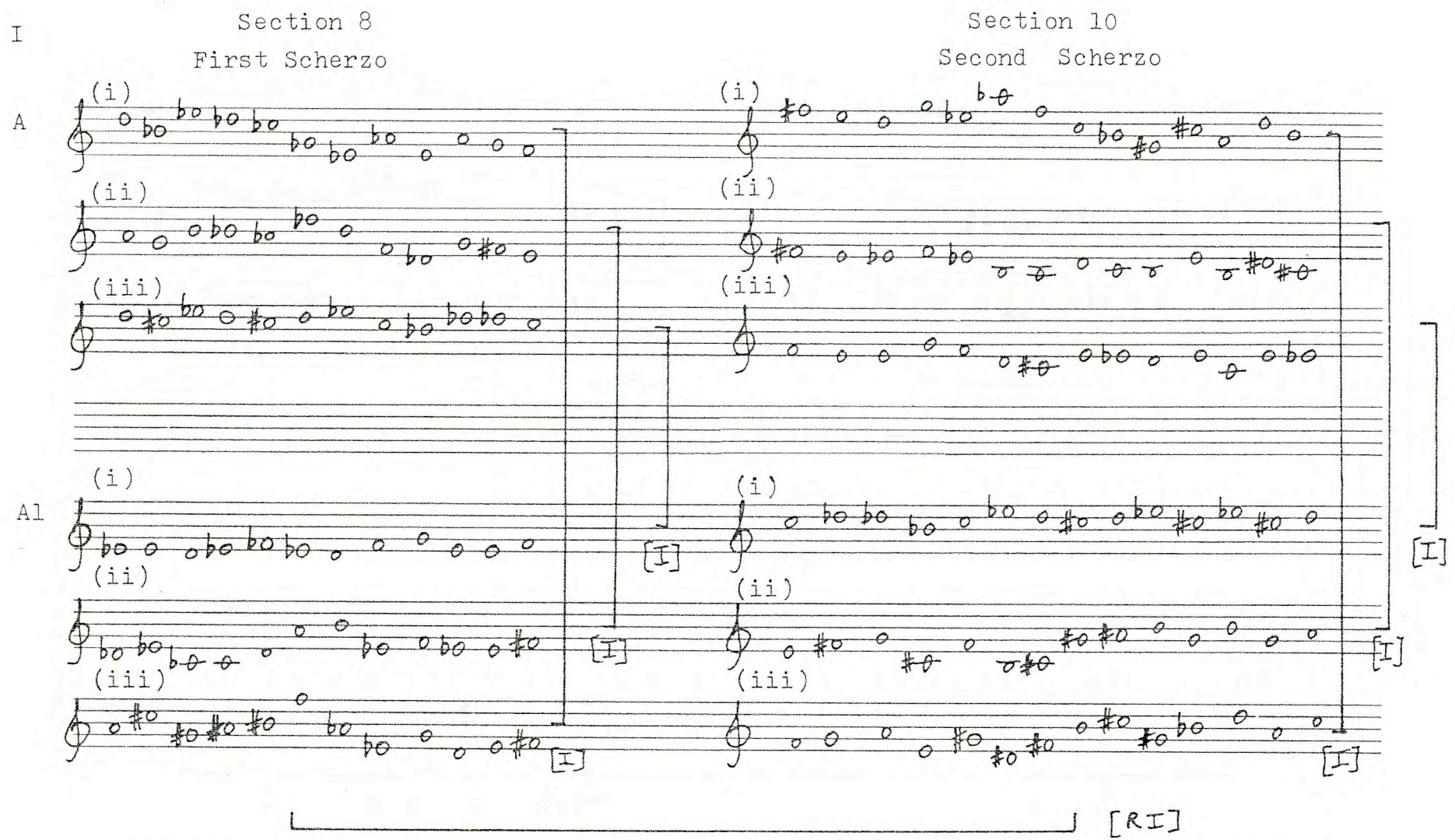
The fourth statement begins with a melodic line which is to dominate the final slow music of the piece. But the whole scherzo ends not with this music, but with its inversion; suggesting that the process is not yet complete - that the line is not yet ready to occupy its place in the important finale.

Hence the second scherzo, which performs the role of completion. On first violins this time, its statements are mirror images - sometimes exact and sometimes approximate - of those of the first scherzo. Each part and segment is a retrograde inversion of its earlier counterpart. This process in all four statements of both scherzi is shown in Example 4.19.

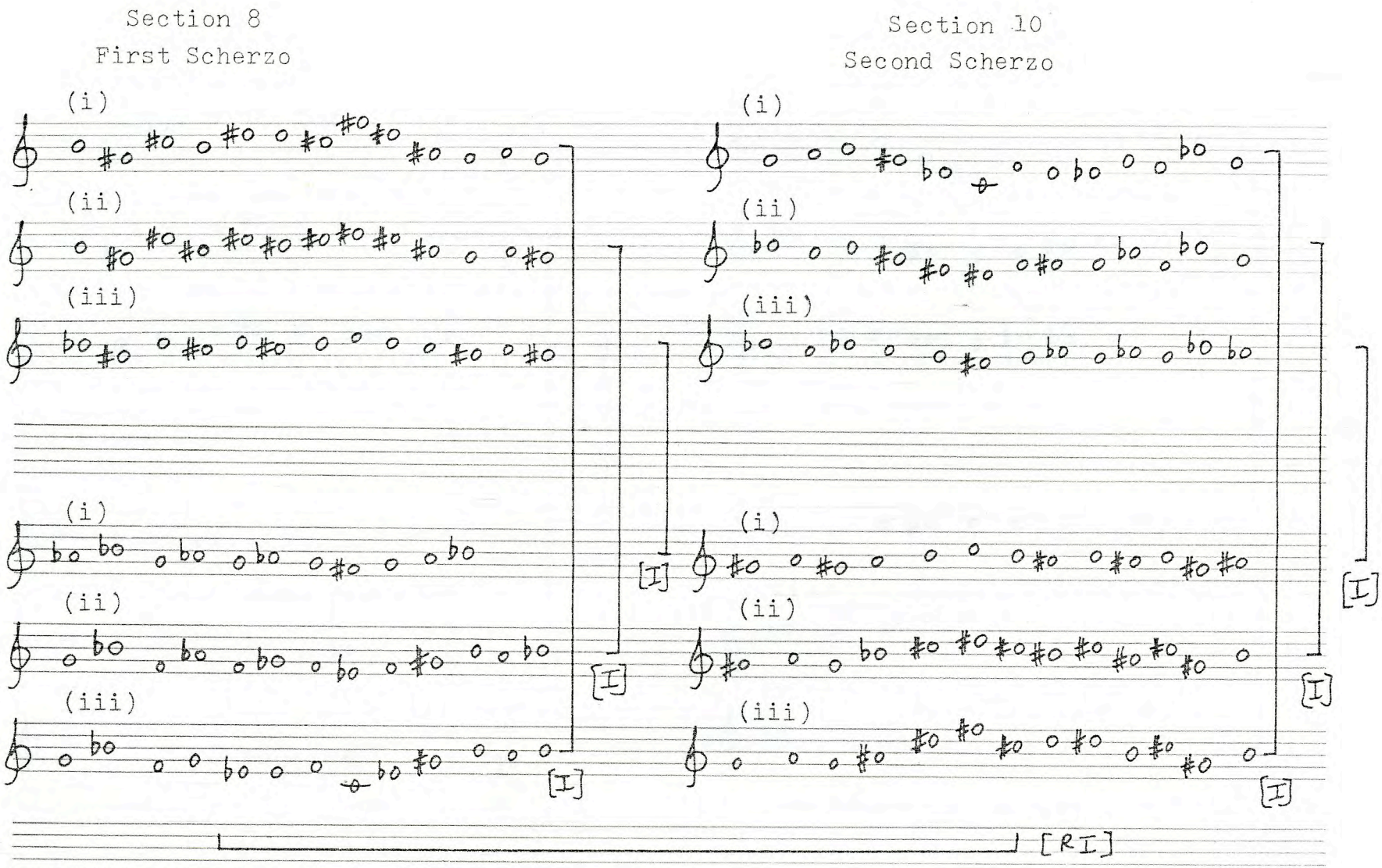
The result is that the second scherzo does end with the prime version of the final line of Example 4.18, in readiness for the slow finale.

The importance of this line (to be called X henceforth) has been predicted by its appearance during the slow transition before the first scherzo, emerging first among other lines on first violin, pizzicato (bar 571), then unmistakably in a solo flute cantus immediately prior to the scherzo (bar 581).

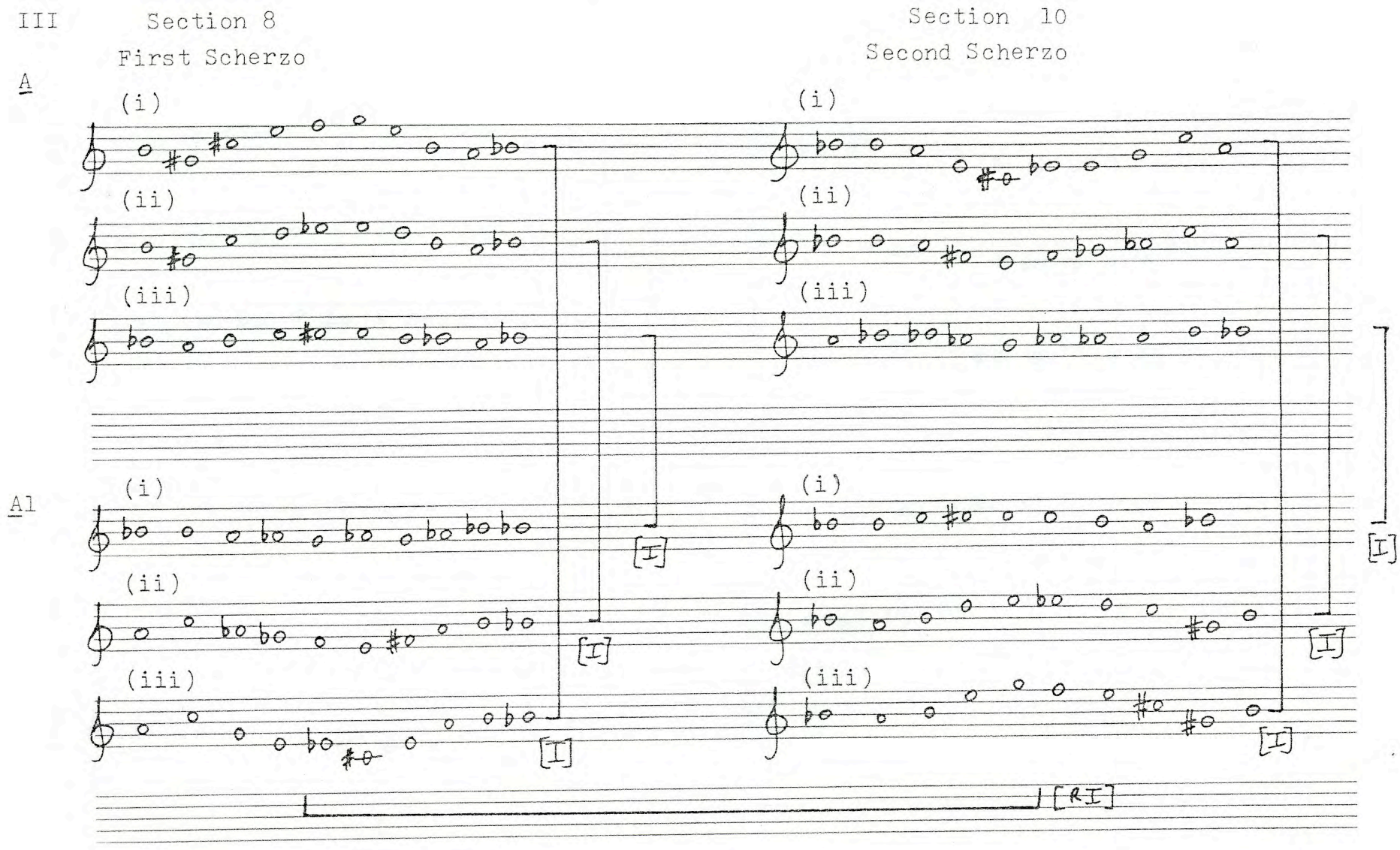
Furthermore, X dominates the trio, section 9 - its notes becoming a long string cantus with melismas branching from it. The function of this trio is as a point of repose and contrast between two scherzi; it is also a chance to focus and reflect upon the harmonic



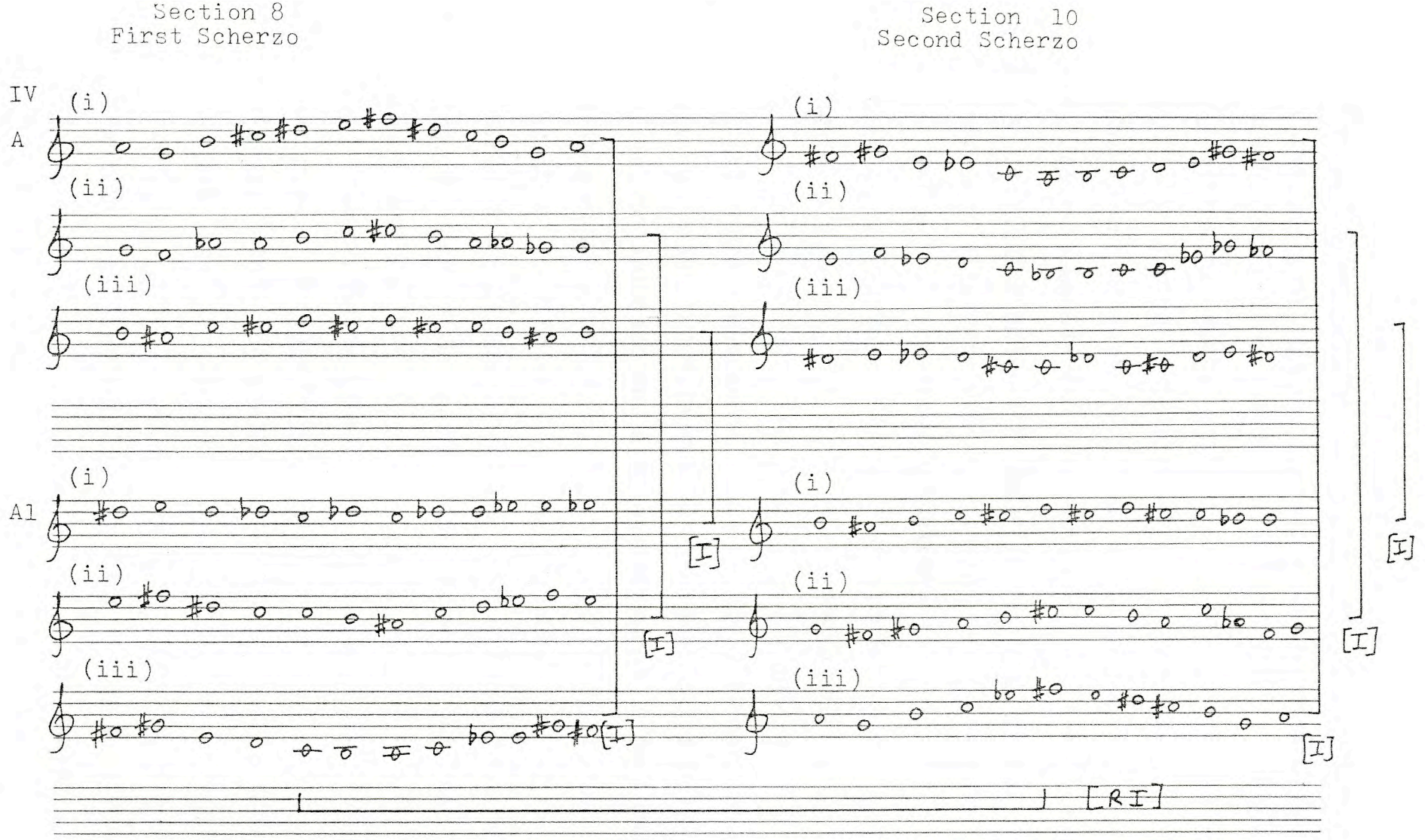
EXAMPLE 4.19.1 Second Taverner Fantasia, sections 8 and 10. Transformations, statement I.



EXAMPLE 4.19.2 Second Taverner Fantasia, sections 8 and 10. Transformations, statement II.



EXAMPLE 4.19.3 Second Taverner Fantasia, sections 8 and 10. Transformations, statement III.



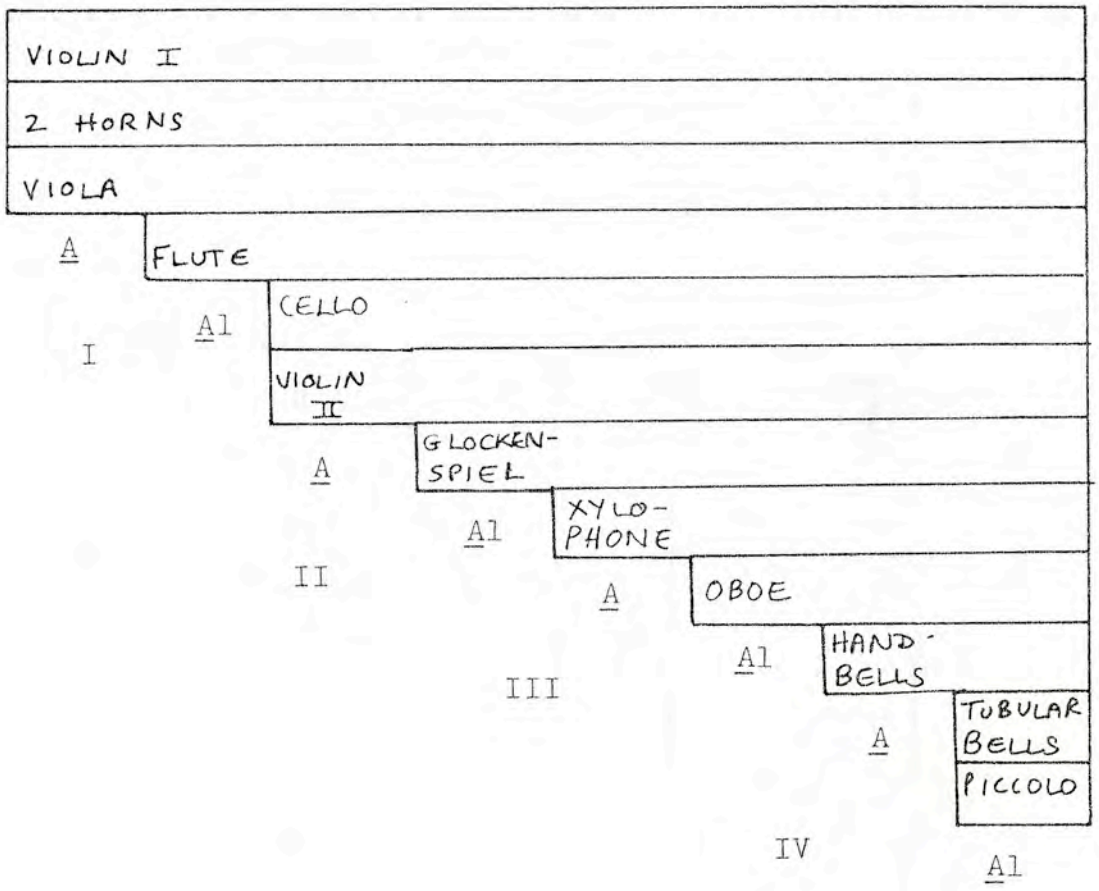
EXAMPLE 4.19.4 Second Taverner Fantasia, sections 8 and 10. Transformations, statement IV.

direction taken by the first scherzo. It seems that one of the changing shapes, X, is frozen and examined under a microscope - each note hugely magnified so that the whole retracts behind each of its parts. This is a period of harmonic clarification - a summary of the achievement of section 8. But it is not a goal reached: before this melody can assert itself and become stable, in the final adagio, the whole process must begin again, this time with more urgency, in the second scherzo.

Two common features of musical material in the two scherzi have been described: the mirrored transformation process, and the primary lines of the B segments. However, the second scherzo displays a greater drama in its forward movement. This is achieved through various means. One factor is the comparative brevity of the interludes, which allows the process to move with greater continuity. Another is the systematic addition of instruments to the polyphonic texture. A third factor is the appearance of the 'Death' chord, [D], in each of the B segments. We will consider these factors in turn.

Firstly, in section 8 the interludes carry weighty material: the 'In Nomine' cantus on violin, molto vibrato. Their harmony takes up that of the B segments and develops it. They almost overshadow the transformations occurring in the A segments. In section 10, however, the interludes are brief gestures of division, simply referring to the harmonic movement taking place, without acting upon it.

Secondly, Davies employs a favourite technique: the creation of a progressively complex web of sound through a build-up of instrumental force. At the end of section 10, the texture has moved from three to thirteen independent lines:

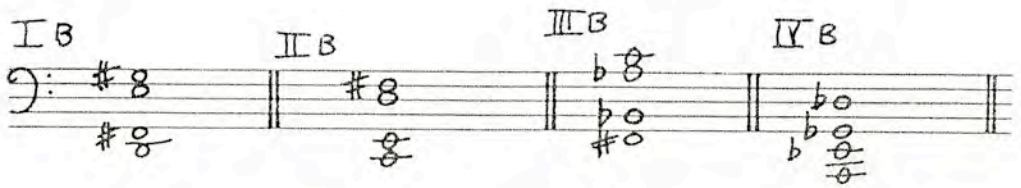


EXAMPLE 4.20 Second Taverner Fantasia, section 10.
Progressive density in instrumentation.

The resultant aural expectation throughout the scherzo of new timbres and registers propels the music forward. Such a build-up does not happen in the same way in section

8: although lines are added they are usually doublings, and the polyphony never ventures beyond two or three voices.

The third factor concerns the 'Death' chord, which features in section 10 as a low, menacing shadow to the contrabassoon solos in the B segments. The first three occurrences of it are straightforward transpositions on D, C and $F^{\#}$ respectively, but the fourth is slightly altered to introduce a minor third, foreign to the whole-tone scale characterising the 'Death' chord:

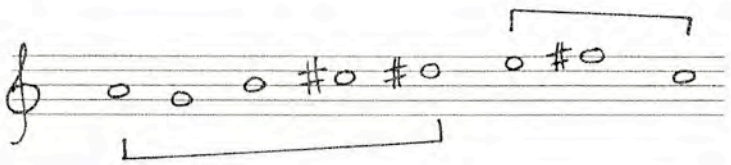


EXAMPLE 4.21 Second Taverner Fantasia, section 10. Chords in B segments (horns).

This is by no means a random move; it serves to re-introduce the motto [F] , and to open the field to possible conflict between [F] and [D]. Perhaps it is no coincidence that [D] (Death) should engage in a battle for dominance with [F] (from the 'In Nomine' plainsong: 'Benedictus qui venit.....').

This leads back to our earlier proposition - that the second half of this fantasia involves a struggle for the superiority of a harmonic area.

The theme X which gradually assumes such prominence is built on a juxtaposition of the two whole-tone scales:

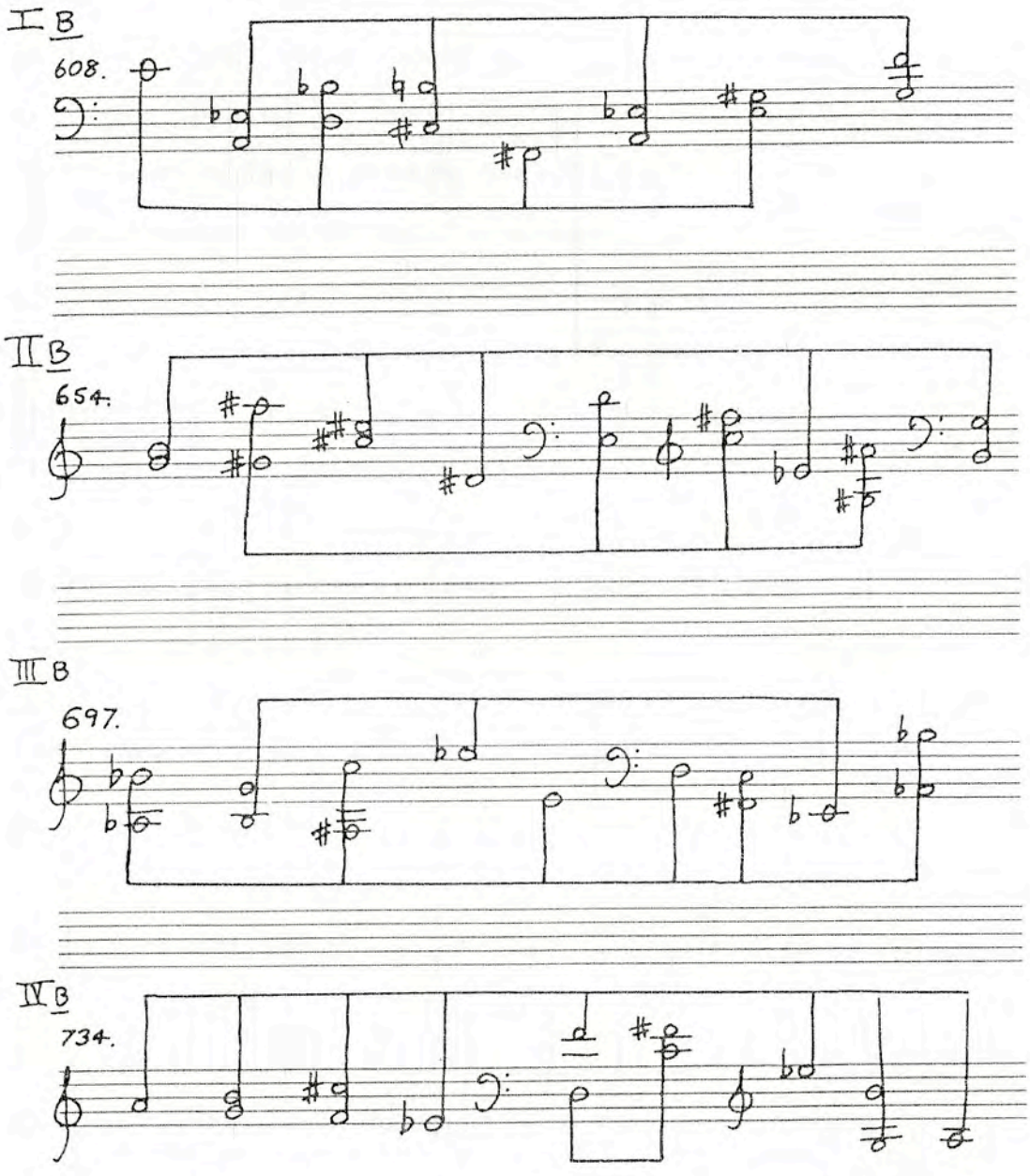


EXAMPLE 4.22 Second Taverner Fantasia.
Theme X - whole-tone structure.

The B segments of both scherzi symbolize something of this dichotomy, as may be noted in Example 4.15. Statement IB is a falling seventh, $B^{\flat}$ to C; statement IIB a falling tritone, A to $E^{\flat}$. Already the two scales are defined, as are two out of the three possible intervals within a whole-tone scale - major second, major third and tritone, plus octave equivalents. Statement IIIB compresses the identities of I and II into one: two pitches from each scale appear interlocked. Finally, statement IVB achieves a compromise: four pitches from the same whole-tone scale, using all the intervals, including the missing major third. Describing the whole-tone scale beginning on C as [y], and the scale beginning on $C^{\#}$ [z], we may describe these segments thus:

IB	IIB	IIIB	IVB
[y]	[z]	[y]+[z]	[Z]

A similar coming together of one whole-tone scale is displayed in the string harmony accompanying these horn notes in the B segments of section 8. Example 4.23 shows how the two whole-tone scales are interlocked:[1]



EXAMPLE 4.23 Second Taverner Fantasia, section 8. Harmonic movement in B segments (strings).

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1. cf. a similar process in Prolation; Example 2.13 above.

At first the two whole-tone scales are roughly equal in proportion. IB uses all twelve tones once each, alternating between scales. In IIB and IIIB one scale is dominant over the other, and in IVB one scale achieves complete superiority, with only a couple of 'foreign' notes. Furthermore, all six of its notes are used immediately, in a pointed reference to theme X.

At the opening of the slow finale, section 12, theme X is at last able to assert itself after a gradual but frenzied emergence during the scherzi and trio. As shown above, its bipartite whole-tone structure has been reflected in other harmonic activity, and this is further reinforced by the two opposing tritones which conclude the short transition, section 11.

The function of this finale is quite different from that of the rest of the piece. The development is over: the material has by now been subject to rigorous working out, and harmonic conflicts have been brought to the fore. Now there is a concentration of ideas - unadorned and reduced to their essential forms.

Theme X forms the basis of the section, on strings. However, at its fourth repetition the constituent parts of [D] and [F] begin to assimilate on brass (bar 1156). The barriers between symbolic and non-symbolic material have been broken: the 'Death' chord seems now to represent a whole-tone, or major tonality, while chord [F] represents the opposite minor tonality. As if in confirmation of this, there is at bar 1125 an appearance of the Taverner plainsong fully integrated with other

music, and not as a quotation as previously. Every part of the music is much simpler, much clearer, than at any stage in the piece. The music is more essentially now about the 'In Nomine': it has moved towards it rather than started from it.

The coda, too, allows the very last word to the plainsong. It is a fleeting and insubstantial ending, paying scant homage to the vast complexity which has preceded it. Played very quietly on wind, the impression is of an echo from elsewhere in time: perhaps from the composer's mind before the work was begun. It may be in part a final token of respect to Taverner the composer. Most importantly, it re-directs attention to the work's source, giving to the plainsong the status it has lacked. The struggle for harmonic dominance dissolves as the opposing parties are consumed by the music that generated them all.

The manipulation of time - chronological, psychological and historical time - is a vital compositional tool in the fantasia. The conflicts sparked off by the interaction of these three kinds of time are a fascinating aspect of the work, and are closely linked with transformation processes. For instance, we may perceive the cantus fragments in section 8 as a historical reference; as the articulation of a structure through their temporal separation; and as a static contrast to the concurrent rapid transformations. The pacing of transformations is also very important in the control of harmonic change, as seen in sections 8, 9 and 10.

Although the Second Taverner Fantasia is not Davies' first attempt at extended orchestral writing, it differs significantly in two respects from Prolation. Firstly, there is a strong dramatic element within the fantasia due to its relationship with the opera Taverner. Prolation is essentially non-dramatic - any meaning being contained within the actual notes and processes. Secondly, although the serial workings are as complex in the fantasia as they are in Prolation, in the later work they operate within established formal contexts such as sonata and rondo forms - being a means to a perception of higher-level processes rather than ends in themselves.

CHAPTER V

THE MAGIC SQUARE

Davies began to use so-called 'magic squares' as an aid to composition in the mid-seventies, and they have featured in a large number of works since. Despite an aura of mystery surrounding their astrological connotations and mathematical properties, the use of squares marks no great revolution in Davies' musical thinking. It is rather an extension of compositional principles with which he had been working for many years. Transpositional squares, for example, may be observed in works as early as Stedman Doubles (1955) and Prolation, and they form the groundplan for transformation processes in the Taverner works.

These earlier pitch workings focus primarily on the initial line or set as most significant, with subsequent lines moving away and changing, but always being derivations of the first one. The goal is usually a new statement of the first line, often in inversion. The magic square, however, is by nature balanced and symmetrical - a complete statement in itself. It depends for the aural impact of its melodic and harmonic properties on the particular pathway traced through it.

The permutational possibilities here provide the composer with a rich and varied source of material, while at the same time remaining within a defined element field. Such extended statements are entirely suited to Davies, with his penchant for long cantus lines and the application to them of techniques like

isorhythm and mensural canon. Indeed, from the listener's point of view, the clarification of this predominant line and its associated hierarchy of levels has been more important than the actual note workings within the square.

The basic property of a numerical magic square is that all its rows, read across, downwards and diagonally, add up to the same number.[1] The traditional linking of these mathematical phenomena with the planets provides mystical, as well as musical, food for thought. The notes of Davies' squares, too, are generally derived from a plainsong, which has its own spiritual associations. Characteristically, Davies plays on the interaction of such ideas: discovering them and assessing their importance in the piece is, however, a matter for the listener.

The squares most frequently used by Davies and some of the works in which they appear are as follows:

Square of the Moon[2]	Ave Maris Stella Three Studies for Percussion First Symphony Anakreontika
Square of Mercury	A Mirror of Whitening Light Westerlings

1. For more complex properties see W.S. Andrews: Magic Squares and Cubes, New York, 1960.

2. Number squares associated with the planets are described in J. Michell: The View over Atlantis, London, 1969, pp. 100-101.

Square of the Sun — Second Symphony

Square of Mars — Second Symphony.

Davies' own squares are formed by superimposing a pitch matrix on the number square - the exact method of arriving at the final version varying from square to square. David Roberts has explained in some detail how this process is applied to the squares of the Moon[1] and of Mercury[2]. Without retracing too much of his ground, it would be useful to look beyond the actual steps of construction to the relationship between the square and its original elements, and to the harmonic implications of the square.

Davies' borrowed elements in Ave Maris Stella and A Mirror of Whitening Light are the squares of the the Moon and of Mercury respectively:

MOON

37	78	29	70	21	62	13	54	5
6	38	79	30	71	22	63	14	46
47	7	39	80	31	72	23	55	15
16	48	8	40	81	32	64	24	56
57	17	49	9	41	73	33	65	25
26	58	18	50	1	42	74	34	66
67	27	59	10	51	2	43	75	35
36	68	19	60	11	52	3	44	76
77	28	69	20	61	12	53	4	45

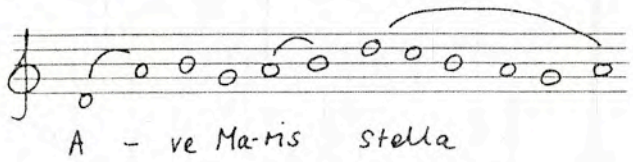
MERCURY

8	58	59	5	4	62	63	1
49	15	14	52	53	11	10	56
41	23	22	44	45	19	18	48
32	34	35	29	28	38	39	25
40	26	27	37	36	30	31	33
17	47	46	20	21	43	42	24
9	55	54	12	13	51	50	16
64	2	3	61	60	6	7	57

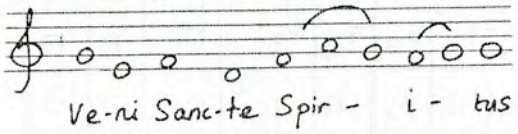
EXAMPLE 5.1 Magic squares of Moon and Mercury.

1. Contact 19, 1978, pp. 26-29.
2. Ibid. 23, 1981, pp. 26-29.

He also uses two plainsong melodies:



EXAMPLE 5.2.1 Plainsong used in Ave Maris Stella.[1]

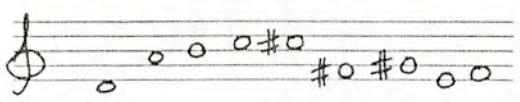


EXAMPLE 5.2.2 Plainsong used in A Mirror of Whitening Light.[1]

The processes by which these elements become a combined pitch and duration square for compositional use are different in each case. The manipulation of the Moon square is considerably more complex than that of the Mercury square. The two processes may be summarised thus:

1. Moon/Ave Maris Stella

Plainsong gives rise to a pitch set:



EXAMPLE 5.3 Pitch set used in Moon square.

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1. See Appendix A for sources.

A transpositional square is made from the pitch set:

D	A	B	C	C#	F#	G#	E	F
A	E	F#	G	G#	C#	D#	B	C
B	F#	G#	A	A#	D#	F	C#	D
C	G	A	A#	B	E	F#	D	D#
C#	G#	A#	B	C	F	G	D#	E
F#	C#	D#	E	F	A#	C	G#	A
G#	D#	F	F#	G	C	D	A#	B
E	B	C#	D	D#	G#	A#	F#	G
F	C	D	D#	E	A	B	G	G#

EXAMPLE 5.4 Transpositional square.

The numbers of the Moon square are reduced to nine or less by repeatedly subtracting nine:

1	6	2	7	3	8	4	9	5
6	2	7	3	8	4	9	5	1
2	7	3	8	4	9	5	1	6
7	3	8	4	9	5	1	6	2
3	8	4	9	5	1	6	2	7
8	4	9	5	1	6	2	7	3
4	9	5	1	6	2	7	3	8
9	5	1	6	2	7	3	8	4
5	1	6	2	7	3	8	4	9

EXAMPLE 5.5 Reduced version of Moon square.

Each horizontal line of pitches is numbered one to nine:

D_1	A_2	B_3	C_4	$C\#_5$	$F\#_6$	$G\#_7$	E_8	F_9
A_1	E_2	$F\#_3$	G_4	$G\#_5$	$C\#_6$	$D\#_7$	B_8	C_9
B_1	$F\#_2$	$G\#_3$	A_4	$A\#_5$	$D\#_6$	F_7	$C\#_8$	D_9
C_1	G_2	A_3	$A\#_4$	B_5	E_6	$F\#_7$	D_8	$D\#_9$
$C\#_1$	$G\#_2$	$A\#_3$	B_4	C_5	F_6	G_7	$D\#_8$	E_9
$F\#_1$	$C\#_2$	$D\#_3$	E_4	F_5	$A\#_6$	C_7	$G\#_8$	A_9
$G\#_1$	$D\#_2$	F_3	$F\#_4$	G_5	C_6	D_7	$A\#_8$	B_9
E_1	B_2	$C\#_3$	D_4	$D\#_5$	$G\#_6$	$A\#_7$	$F\#_8$	G_9
F_1	C_2	D_3	$D\#_4$	E_5	A_6	B_7	G_8	$G\#_9$

EXAMPLE 5.6 Initial numbering of pitches.

Each cell of the square is reordered according to the reduced version of the square of the Moon:

D_1	$F\#_6$	A_2	$G\#_7$	B_3	E_8	C_4	F_9	$C\#_5$
$C\#_6$	E_2	$D\#_7$	$F\#_3$	B_8	G_4	C_9	$G\#_5$	A_1
$F\#_2$	F_7	$G\#_3$	$C\#_8$	A_4	D_9	$A\#_5$	B_1	$D\#_6$
$F\#_7$	A_3	D_8	$A\#_4$	$D\#_9$	B_5	C_1	E_6	G_2
$A\#_3$	$D\#_8$	B_4	E_9	C_5	$C\#_1$	F_6	$G\#_2$	G_7
$G\#_8$	E_4	A_9	F_5	$F\#_1$	$A\#_6$	$C\#_2$	C_7	$D\#_3$
$F\#_4$	B_9	G_5	$G\#_1$	C_6	$D\#_2$	D_7	F_3	$A\#_8$
G_9	$D\#_5$	E_1	$G\#_6$	B_2	$A\#_7$	$C\#_3$	$F\#_8$	D_4
E_5	F_1	A_6	C_2	B_7	D_3	G_8	$D\#_4$	$G\#_9$

EXAMPLE 5.7 Reorganising of cells.

The whole square is then rotated on a vertical axis, to give Davies' final version of the Moon square:[1]

C#1	F6	C2	E7	B3	G#8	A4	F#9	D5
A6	G#2	C7	G3	B8	F#4	D#9	E5	C#1
D#2	B7	A#3	D8	A4	C#9	G#5	F1	F#6
G7	E3	C8	B4	D#9	A#5	D1	A6	F#2
G3	G#8	F4	C#9	C5	E1	B6	D#2	A#7
D#8	C4	C#9	A#5	F#1	F6	A2	E7	G#3
A#4	F9	D5	D#1	C6	G#2	G7	B3	F#8
D9	F#5	C#1	A#6	B2	G#7	E3	D#8	G4
G#5	D#1	G6	D2	B7	C3	A8	F4	E9

EXAMPLE 5.8 Square of the Moon, as used in Ave Maris Stella.

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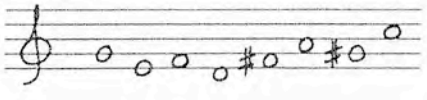
2. Mercury/Veni Sancte Spiritus

Plainsong gives rise to a pitch set:



EXAMPLE 5.9 Pitch set used in Mercury square.

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1. Roberts' analysis differs in one respect. At the stage of Example 5.6 above, he reorders all cells according to the top row only of the Moon square, then systematically rotates each row to produce Example 5.7.

A transpositional square is made from the pitch set:

G	E	F	D	F♯	A	G♯	C
E	C♯	D	B	D♯	F♯	F	A
F	D	E♭	C	E	G	F♯	A♯
D	B	C	A	C♯	E	D♯	G
F♯	D♯	E	D♭	F	A♭	G	B
A	F♯	G	E	G♯	B	B♭	D
G♯	F	F♯	E♭	G	B♭	A	C♯
C	A	B♭	G	B	D	C♯	F

EXAMPLE 5.10 Transpositional square.

The pitches are numbered one to sixty-four along horizontal rows:

G 1	E 2	F 3	D 4	F♯ 5	A 6	G♯ 7	C 8
E 9	C♯ 10	D 11	B 12	D♯ 13	F♯ 14	F 15	A 16
F 17	D 18	E♭ 19	C 20	E 21	G 22	F♯ 23	A♯ 24
D 25	B 26	C 27	A 28	C♯ 29	E 30	D♯ 31	G 32
F♯ 33	D♯ 34	E 35	D♭ 36	F 37	A♭ 38	G 39	B 40
A 41	F♯ 42	G 43	E 44	G♯ 45	B 46	B♭ 47	D 48
G♯ 49	F 50	F♯ 51	E♭ 52	G 53	B♭ 54	A 55	C♯ 56
C 57	A 58	B♭ 59	G 60	B 61	D 62	C♯ 63	F 64

EXAMPLE 5.11 Initial numbering of pitches.

Each cell of the square is reordered according to the square of Mercury:

C 8	A 58	B♭ 59	F♯ 5	D 4	D 62	C♯ 63	G 1
G♯ 49	F 15	F♯ 14	E♭ 52	G 53	D 11	C♯ 10	C♯ 56
A 41	F♯ 23	G 22	E 44	G♯ 45	E♭ 19	D 18	D 48
G 32	D♯ 34	E 35	C♯ 29	A 28	A♭ 38	G 39	D 25
B 40	B 26	C 27	F 37	D♭ 36	E 30	D♯ 31	F♯ 33
F 17	B♭ 47	B 46	C 20	E 21	G 43	F♯ 42	A♯ 24
E 9	A 55	B♭ 54	B 12	D♯ 13	F♯ 51	F 50	A 16
F 64	E 2	F 3	B 61	G 60	A 6	G♯ 7	C 57

EXAMPLE 5.12 Reorganising of cells.

The numbers of the Mercury square are reduced to eight or less by repeatedly subtracting eight:

8	2	3	5	4	6	7	1
1	7	6	4	5	3	2	8
1	7	6	4	5	3	2	8
8	2	3	5	4	6	7	1
8	2	3	5	4	6	7	1
1	7	6	4	5	3	2	8
1	7	6	4	5	3	2	8
8	2	3	5	4	6	7	1

EXAMPLE 5.13 Reduced version of Mercury square.

With the pitches of Example 5.12 superimposed, this produces Davies' final version of the Mercury square:

C 8	A 6	B♭ 3	F♯ 5	D 4	D 6	C♯ 7	G 1
G♯ 1	F 7	F♯ 6	D♯ 4	G 5	D 3	C♯ 2	C♯ 8
A 1	F♯ 7	G 6	E 4	D 5	E♭ 3	D 2	G♯ 8
G 8	D♯ 2	E 3	C♯ 5	D 4	A♭ 6	G 7	A 1
B 8	B 2	C 3	F 5	C♯ 4	E 6	E♭ 7	F♯ 1
F 1	B♭ 7	B 6	C 4	E 5	G 3	F♯ 2	B♭ 8
E 1	A 7	B♭ 6	B 4	E♭ 5	F♯ 3	F 2	A 8
F 8	E 2	F 3	B 5	G 4	A 6	A♭ 7	C 1

EXAMPLE 5.14 Square of Mercury, as used in A Mirror of Whitening Light.

Several points of interest may be noted in these two procedures. Firstly, the Veni Sancte Spiritus set adheres far more closely to its original plainsong melody, both in interval and in melodic shape, than does the Ave Maris Stella set. Secondly, the Mercury square retains its original numeric values throughout the process, reducing them only when the process is complete (Example 5.13). Thus the Veni Sancte Spiritus set is subjected to organisation according to the Mercury square in its original form. In the case of

the Moon square, its values are reduced in the early part of the process (Example 5.5), and it consequently has no bearing in its original form upon the pitch ordering.

The Moon matrix, in fact, has travelled further from its original elements than the Mercury square. There are implications here for the symbolic and the harmonic functions of these squares within the music.

A marked difference may be observed between Ave Maris Stella and A Mirror of Whitening Light in the timing of original plainsong quotations. In the latter, the plainsong appears very near the beginning, on the flute at Figure A, as though clearly stating the origin of the material to come. In Ave Maris Stella, however, the only statement of the plainsong is near the end, at Figure L1 on flute. Here the roots of the magic square are revealed only after extensive working out of its permutations - a totally different psychological impact. The fact that the Mercury square is more closely related to the plainsong than the Moon square reinforces this concept of fore- and after-statement.[1]

These squares possess their own inherent harmonic relationships, each of which is articulated in a different way according to the permutation used. For example,

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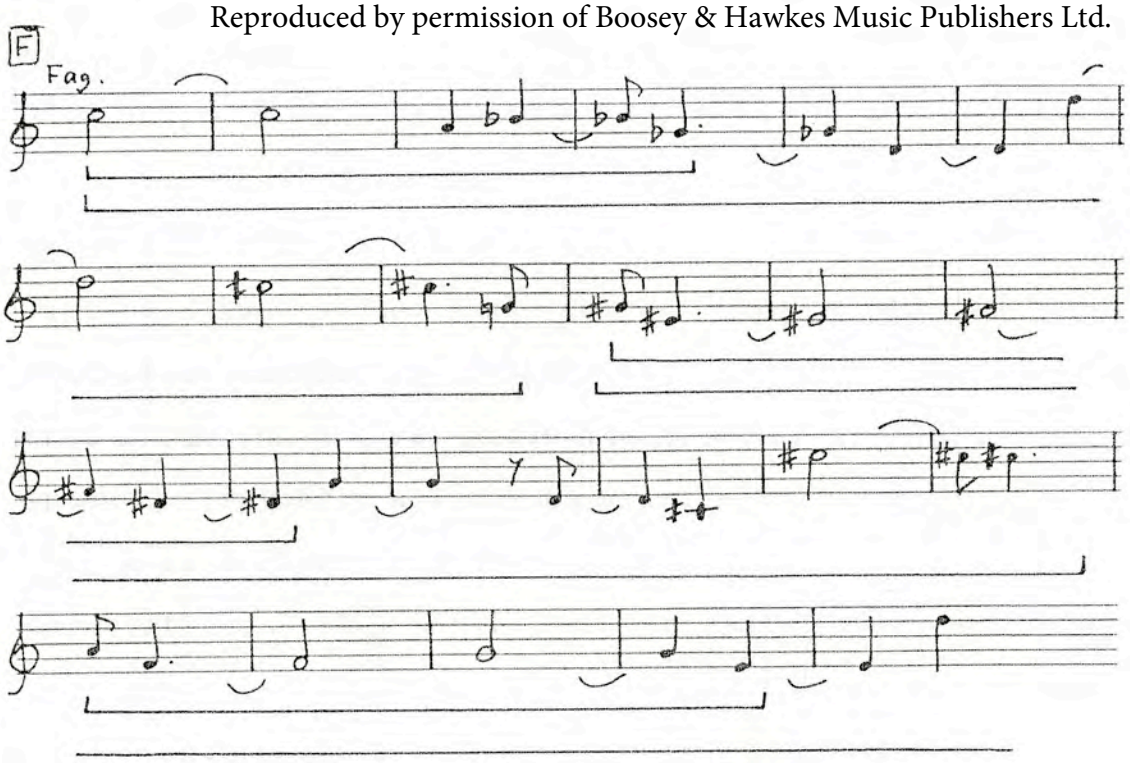
1. In the First Symphony, the plainsong root of the Moon square is stated clearly near the beginning, at Figure 2 on solo violin. This early 'unshrouding' of the source material seems to be a feature of later works.

a horizontal row-by-row reading of each square emphasises major and minor thirds, while diagonal readings yield perfect fourths and fifths. In the Mercury square, the intervallic structure of the plainsong recurs persistently. In a row-by-row reading the characteristic descending thirds predominate, as in A Mirror of Whitening Light, Figure F (Example 5.15). The Moon square also contains a distinctive pattern of thirds in the first four cells of the top row, this time ascending. Because of the rotational numeric structure of the square, however, the pattern when repeated does not coincide with the beginning of each row. In the first movement of Ave Maris Stella the clear separation of these rows into phrases means that intervallic patterns and phrases occur independently (Example 5.16).

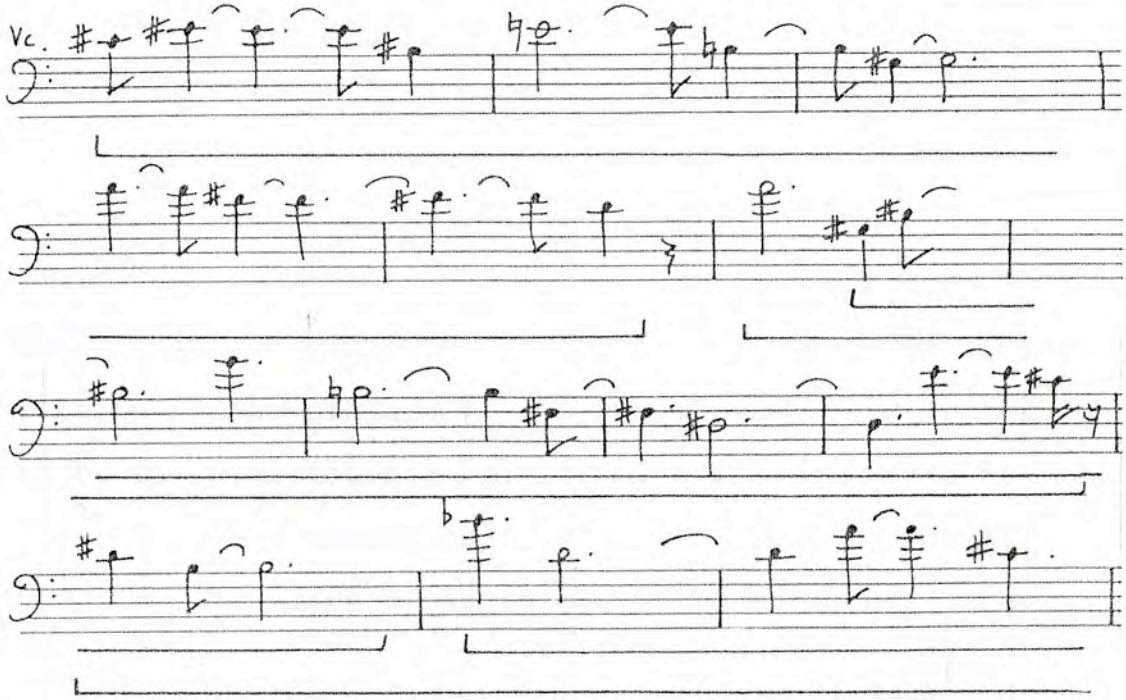
In both squares there is a strong pull towards triadic harmony, and tonal implications are not played down. When the piano plays the cello cantus in the first movement of Ave Maris Stella, the composer directs the performer to

> ....catch and point with the pedal major and minor thirds and sixths.

Phrases often fall into groups of three pitches which outline a major or minor triad - the first note being emphasised by its length or manner of articulation. Triadic links may also be heard over a greater time span, both immediate and longer-term relationships being highlighted by chordal backing



EXAMPLE 5.15 A Mirror of Whitening Light, Fig. F.
Predominant third patterns.



EXAMPLE 5.16 Ave Maris Stella, opening.
Overlapping of magic square lines and intervallic patterns.

from the marimba. Example 5.17 shows this in the harmonic activity of cello and marimba in the first movement. The constant side-stepping and overlapping of major and minor triads prevents the assertion of a particular tonal centre.

The nature of the magic square is kaleidoscopic - exhibiting constantly changing patterns when viewed from different angles, while its elements remain intact. Virtually all the material within Ave Maris Stella is derived from one of these patterns, or permutations.[1] The particular permutation used has a bearing on the structural, as well as the melodic and harmonic properties of the music. For instance, the length of each movement is determined by the time taken to play through the square. A closer examination of parts of Ave Maris Stella reveals how the magic square is not merely a source of pitch a number orderings, but is an agent in making clear a fundamental compositional principle.

In each movement a single cantus line predominates, representing a complete permutation of the magic square (except in the ninth movement, where two lines appear to be of equal importance). This may be conveyed by one instrument throughout, as in the first movement, or it may be migrant, as in the third movement.

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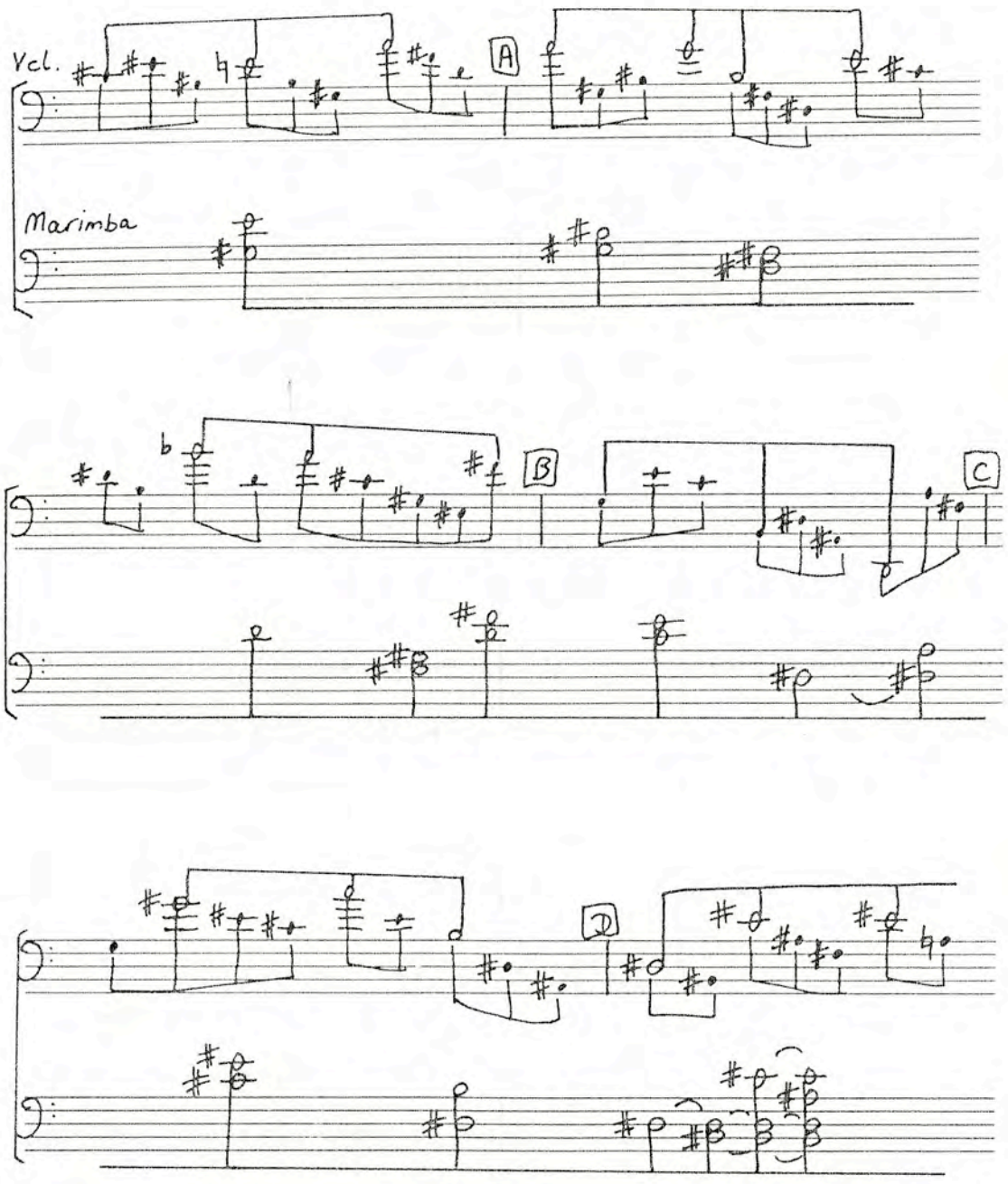
1. Illustrated in Appendix B.

♩ = a longer or more prominent note.



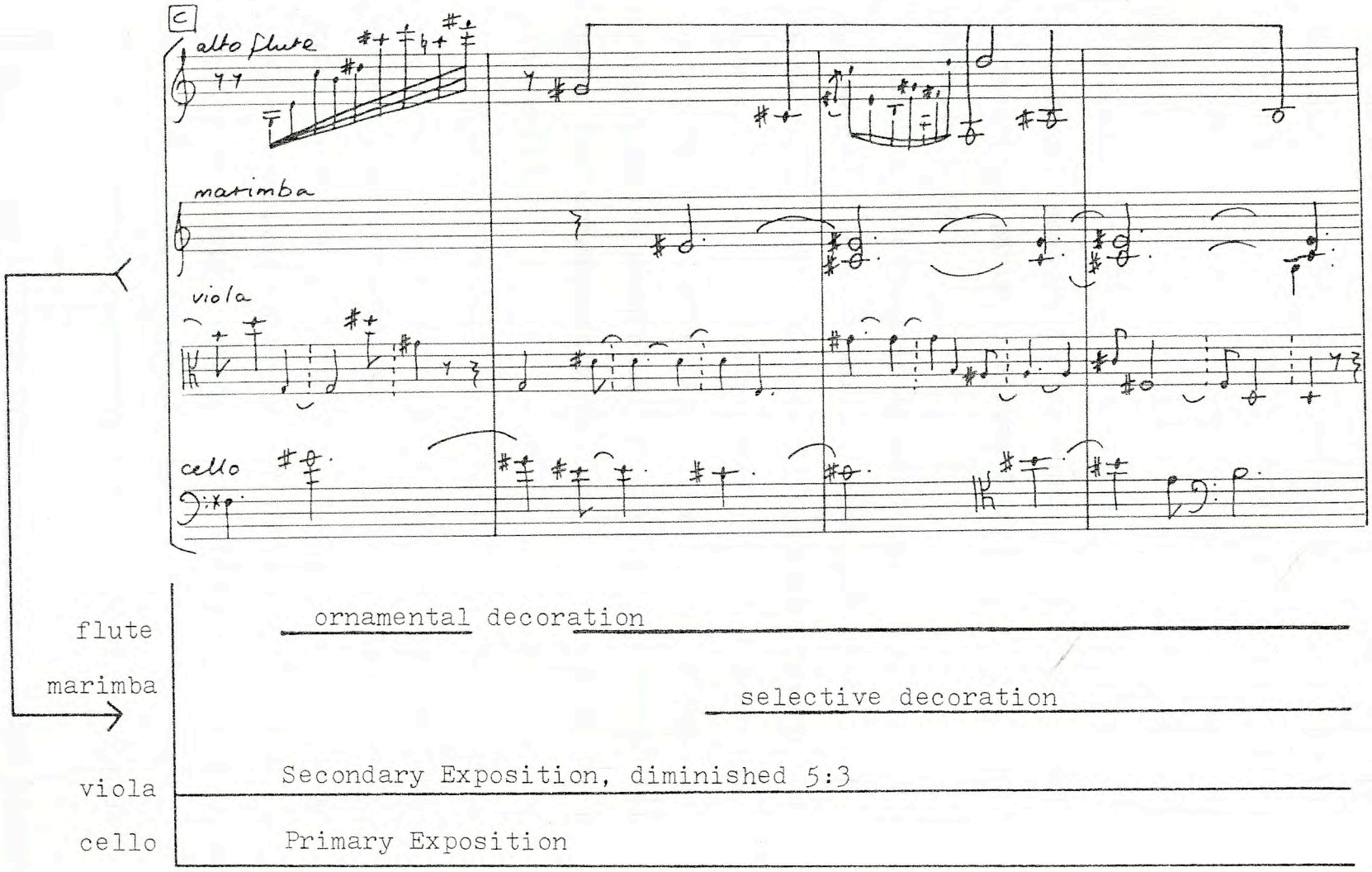
EXAMPLE 5.17 Ave Maris Stella, first movement. Harmonic analysis of cello and marimba parts, showing diatonic triad movement and selective decoration.

This cantus, which may be termed the Primary Exposition, is distinct from other references to the square by being a complete, unfragmented presentation occupying the whole movement. Primary Expositions occur as follows:

Movement	I	cello
	II	clarinet
	III	marimba/clarinet
	IV	clarinet/viola/cello
	V	clarinet/viola/cello/flute
	VI	marimba
	VII	clarinet/flute/viola/cello/piano
	VIII	flute/clarinet/cello
	IX	(a) marimba
		(b) clarinet/flute/viola/cello/piano.

These important lines are accompanied by more intermittent references to the square on other instruments. Such material may be incomplete statements branching off the cantus line, or mensurally diminished complete statements. They may be termed Secondary Expositions.

Additionally, there is decoration. This may be identified as either selective or ornamental. Selective decoration is the type shown in Example 5.17, where the marimba projects certain selected notes from the cello line for emphasis. Ornamental decoration, however, involves a greater elaboration of the cantus using added notes and melismatic figurations. An extract from the middle of the first movement shows all these layers at work (Example 5.18):



EXAMPLE 5.18 Ave Maris Stella, first movement. Structural layers.

The alto flute line (ornamental decoration) is of particular interest as it makes reference to parts of the square in a more liberal manner, contrasting with the methodical patterns of Primary and Secondary Expositions. Taking a pitch from the cello as its starting point, the flute elaborates upon it using a line from elsewhere in the square. A pitch analysis of these two parts at Figure C shows how this works (Example 5.19).

Such a relationship between cantus and decoration may be noted in much earlier pieces.[1] Indeed, the whole concept of a hierarchy of musical levels has always been an intrinsic part of Davies' technique. In the magic square works, however, foreground and background are more clearly defined than in earlier music, and consequently the levels are aurally more discernible.

These clearly distinct layers of material exist not only within chamber works like Ave Maris Stella, where each instrument may articulate a separate layer, but also within an orchestral texture, where layers may be conceived in blocks of instruments. The magic square has a considerable effect on the structuring of the First Symphony, both in time and space.

The hierarchic structure described above applies

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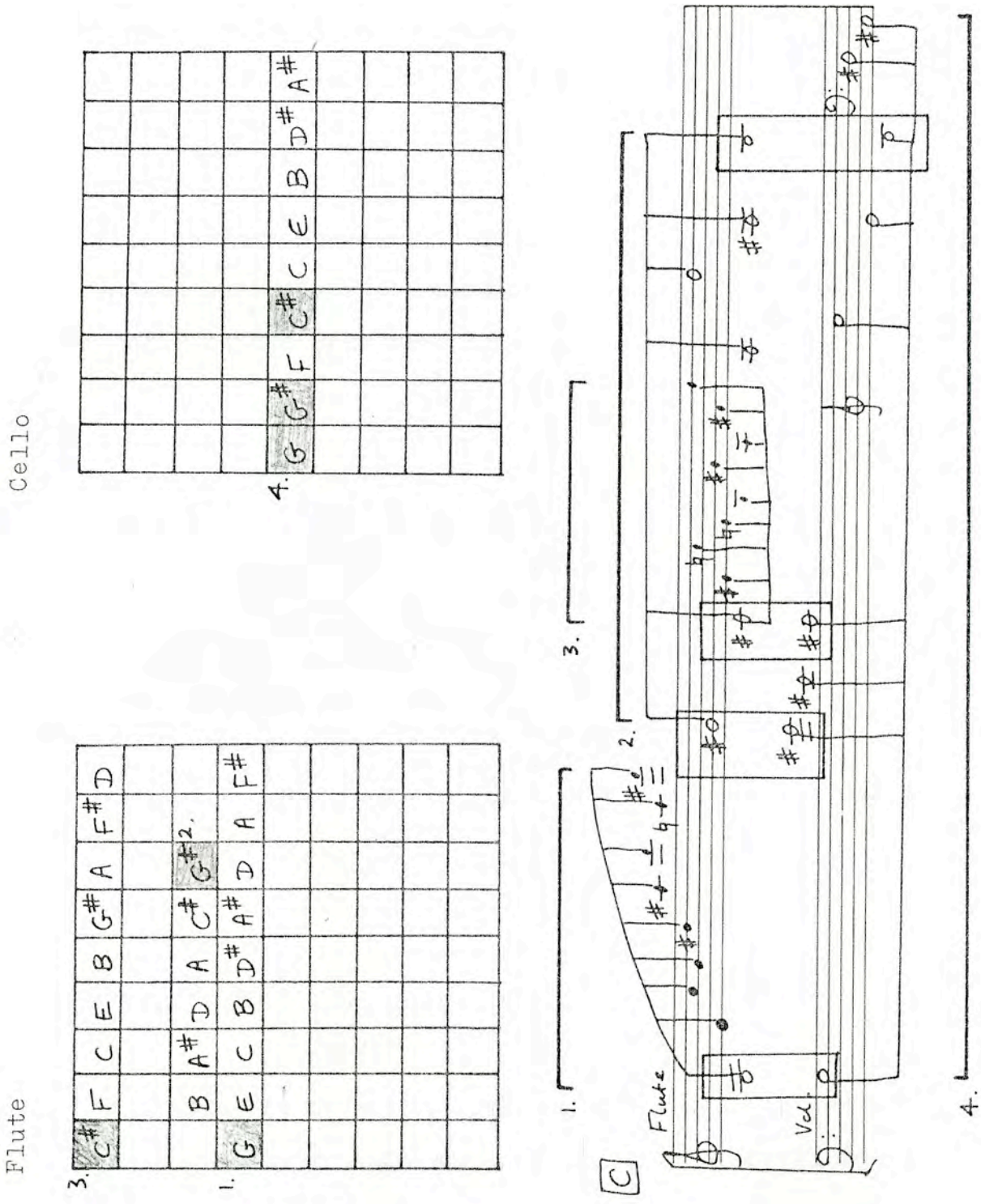
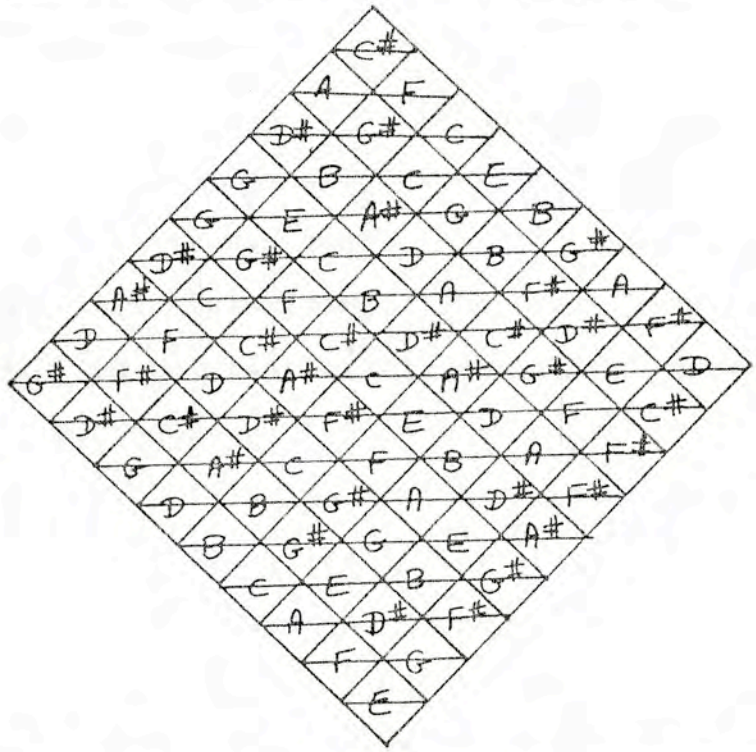
1. cf. opening of Alma Redemptoris Mater, third movement.



EXAMPLE 5.19 Ave Maris Stella, first movement. Derivation of flute decoration from cello line and magic square.

throughout Ave Maris Stella, always dominated by a single permutation of the square as the Primary Exposition. Some of the elaborate workings of this cantus (inspired, no doubt, by Davies' self-confessed 'cross-word-puzzle musical mentality'[1]) may be more entrancing to the eye than to the ear, but are nonetheless ingenious.

The seventh movement, for instance, divides into seventeen sections representing the seventeen lines of the magic square when read as a diamond:[2]



EXAMPLE 5.20 Ave Maris Stella, seventh movement. Magic square permutation.

The note order is not always consistent with the order of the square, and much overlapping of sections

1. Quoted in Griffiths: op. cit., p. 121.
2. A 'clue' in the score is the diamond-shaped boxes enclosing the number of each section.

takes place. In this case, melodic and harmonic relationships are subordinate; more important is the effect of a rapid succession of groups with constant changes of colour, speed and articulation.

In stark contrast, illustrating how variously Davies treats his Primary Expositions, is the marimba part which opens the ninth and final movement. Here the square is presented not as a cantus melody, but as chords - each repeated several times in a slow pulsation, recalling parts of the brilliant marimba cadenza of the sixth movement.

Ave Maris Stella is among the most intellectually and emotionally demanding of Davies' works, yet at the same time it reveals qualities of a new clarity and directness in his writing. The use of magic squares in itself is not responsible for this: there are pieces using magic squares that have been far less successful. The squares contain inherent harmonic and structural relationships, but, like any other compositional device, depend on the composer's resourcefulness in tapping such possibilities. In addition to providing pitch and duration material, the principal effect of the squares in Davies' music has been to increase awareness of different layers in the musical fabric and their functions.

CHAPTER VI

FIRST SYMPHONY

Only in 1976, after more than twenty years of composition resulting in some eighty works, did Davies find it appropriate to name a work 'symphony'. With a worthy self-criticism, but somewhat unfairly, he dismisses previous orchestral works like the Second Taverner Fantasia and Worldes Blis as 'apprentice scores'[1], and points to a newly-acquired familiarity with the great works of past symphonists to explain his increased confidence in that genre.

Apart from its traditional four-movement structure, there is nothing obviously more symphonic, or less fantasia-like, about this symphony than about the Second Taverner Fantasia. Indeed, it has been suggested that the work may justifiably have been named 'Fantasia on Ave Maris Stella', owing to the large amount of material drawn from Davies' earlier work.[2] However, as Ave Maris Stella itself may be viewed as a fantasia on the plainsong of that name, such a title might have seemed inappropriate.

The question of whether symphonic thought in the traditional sense is possible in the context of present-day musical language, and in what terms, is important in a discussion of compositional technique. If it is assumed that a prerequisite of symphonic thought is key contrast, and the existence of two or more contrasted

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1. Programme note for the First Symphony, quoted in Griffiths: op. cit., p. 158.
2. D. Roberts: reviews, Contact 19, 1978, p. 26.

themes within a sonata-form framework, then its survival must be in doubt. David Roberts contends that Davies' First Symphony is 'too original' to be a symphony in the usual meaning of the word[1], by which it is implied that symphonic thought belongs to the music of the past, and that it is closely bound up with tonality. But Leonard B. Meyer questions the

> ....unstated assumption that the negation of the functionalism of traditional tonality entails the impossibility of all forms of functionalism.[2]

There are many other elements which act in a functional, shaping capacity, such as rhythm and texture. It is possible for the hierarchies and contrasts articulated by tonality to be articulated by any of these. Hans Keller, for instance, argues that, regardless of tonal differentiation of themes, it is the large-scale working out of contrasts between statements and developments that is the operative factor in symphonic thought.[3] Non-tonal music may thus be symphonic, as such contrasts are made in a variety of ways - not just tonally.

While contrasts of this kind, including tonal ones, are certainly played out within the work, the First Symphony, as Keller acknowledges, cannot adequately be described in these terms. Here, as previously, material

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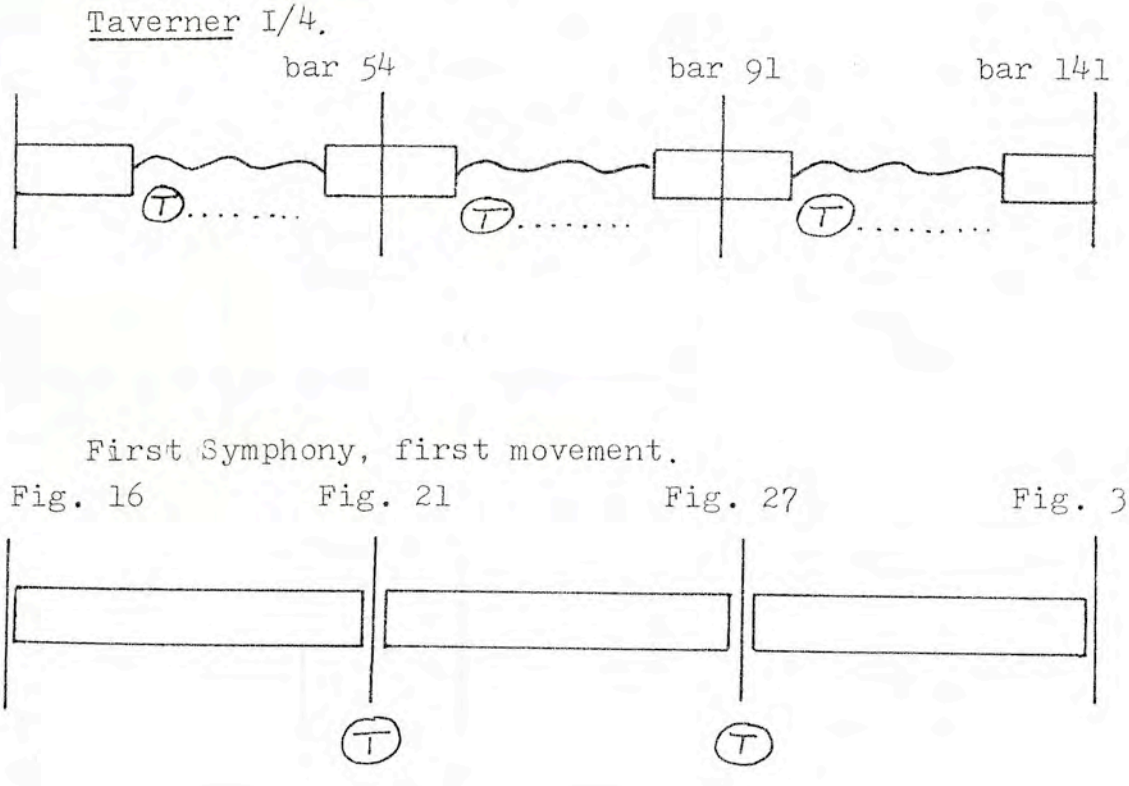
1. Ibid.
2. Meyer: op. cit., p. 300.
3. Keller: 'The State of the Symphony'. Tempo 125, 1978, pp. 6-11.

is in a constant state of motion, with little distinction between statement and development. The methods of activating this motion, however, are sharply distinguished. It could be said that the contrast is not between statement and development, but between development and development.

For Davies, at least, the writing of a symphony has not involved a swing towards a musical thought that is peculiarly symphonic; if it is symphonic it has been so in previous works. Rather, it has meant a re-interpretation of certain pre-existent notions of what may happen in a symphony in terms which are entirely his own. Such notions have arisen from study of works by Mahler, Schumann and Sibelius in particular. Whatever the appropriateness of the title, Davies' musical intentions in the First Symphony are in many ways clearer than in previous orchestral works.

This increased clarity is due to a number of factors. One is the temporal separation of movements, which provides a sense of both repose and expectancy. Another concerns the type of transformation processes used. In the pre- magic square works, transformations consist largely of a system of intervallic contractions and expansions, which causes a constant shifting of harmonic emphasis, resulting in harmonic instability. The harmonies during this process are not meaningful beyond the fact that they articulate the process - only at the beginning and end do we see the ones that are significant in the piece overall. In contrast, transform-

ation by magic square permutation is a change not of the elements, but of the order in which they appear. According to the permutation used, one of the square's potential harmonic arrangements is brought into focus, and that arrangement is presented as a stable harmonic unit. Passages from Taverner and the First Symphony may be outlined thus:



EXAMPLE 6.1 Taverner and First Symphony. Harmonic stability in different transformation processes.

As in Ave Maris Stella, the magic square is used in the First Symphony both to generate material and to define structures. Permutations of the square include all of those used in Ave Maris Stella, as well as some new ones. The three described in Example 6.1 are as follows:

First Symphony		Parallel in Ave Maris Stella[1]
A Fig. 16	Diagonal, violin and viola	Movement II
B Fig. 21	Spiral, bassoon and contrabassoon	Movement III
C Fig. 27	Expanding pattern, trombone	Movements IV and VI

EXAMPLE 6.2 Occurrence of three permutations in the First Symphony and Ave Maris Stella.

The existence of a hierarchy of layers like that in Ave Maris Stella is also evident in this work. Even in the context of a multi-voiced orchestral texture, material may be viewed in terms of Primary Exposition, Secondary Exposition(s) and decoration.[2] Consider the opening of the section at Figure 33 in the first

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1. Permutations illustrated in Appendix B.

2. See p. 135, above, for an explanation of these terms.

movement. Here the first violins unfold the Primary Exposition - a spiral permutation of the magic square. The roles of the other instruments are supportive or decorative. The second violins present multiple articulations of each note of the cantus, while the celesta spins ascending melismas from each. At a further remove, flutes break up the celesta line into a duet. From these new, decorative pitches, lower strings select notes for harmonic reinforcement. These layers are shown in Example 6.3.

The importance of a middle register line which has other lines branching off above and below it is similar to that of the medieval tenor. As Davies has pointed out, listening to his music with this in mind promotes a greater understanding of the harmonic processes involved than does a concentration on the bass, or lowest line.[1]

It becomes clear that orchestration in this work plays a functional as well as a colouring role. As in previous large works, it is an important element in the articulation of structures. Davies claims that he does not use an actual technique of orchestration, and insofar as the musical argument would be obscured if taken out of its orchestral context this is true. But orchestration may also be considered as an element, together with others like rhythm, melody and dynamics, in the original conception of a musical event. From

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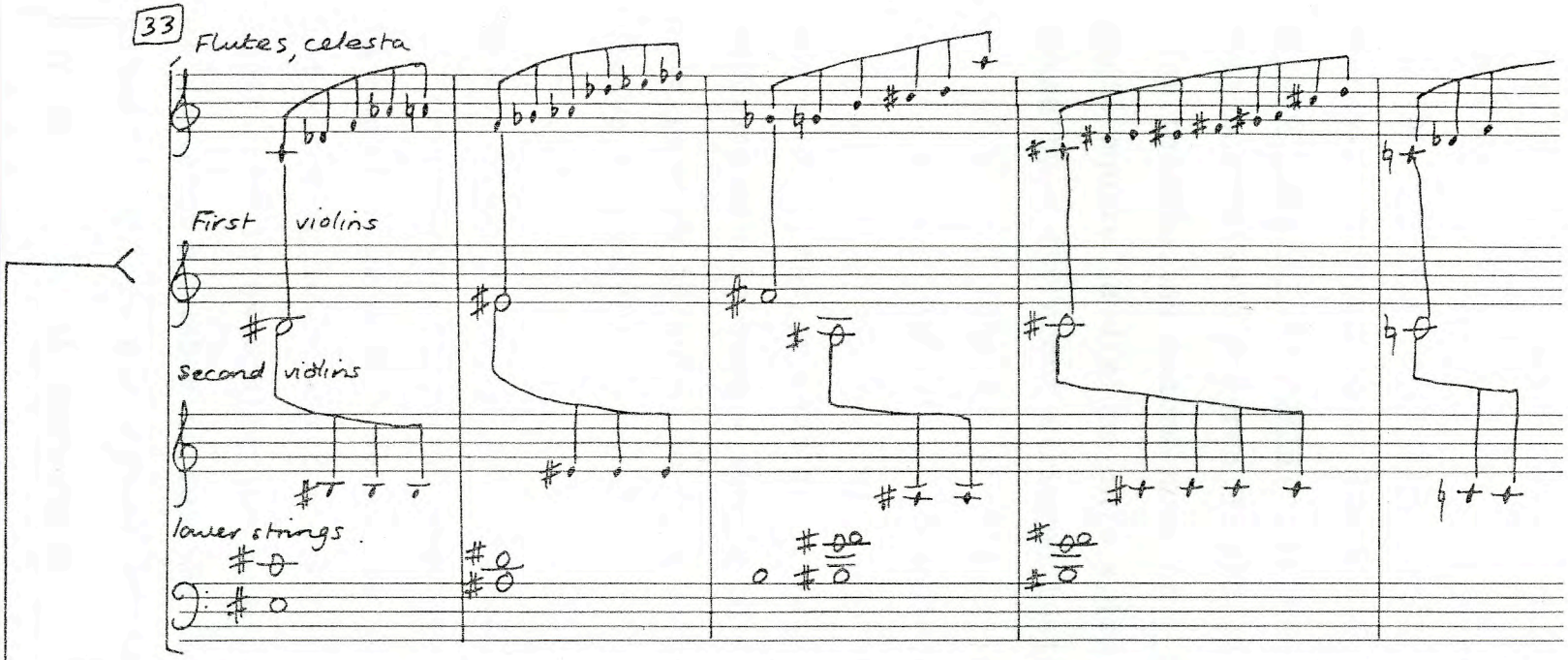
1. Quoted in Griffiths: op. cit., p. 122.



EXAMPLE 6.3 First Symphony, Fig. 33. Pitch analysis, showing structural layers.

this viewpoint, Davies does orchestrate - on a deeper level than that implied in the normal understanding of the word.

The use of orchestral register to shape musical events has already been noted in Prolation and the Second Taverner Fantasia. The process in the First Symphony between Figures 30 and 33 is not far removed from that in the second area of Prolation.[1] The magic square is divided into spiralling lines, each taken by a different stringed instrument. These lines are of graded length. Initially the longest lines are played by the highest instruments and the shortest ones by the lowest instruments - then halfway through the section the process is reversed. The lines are superimposed in such a manner that they all end together. This process is shown in Examples 6.4.1 and 6.4.2. Always characteristic of Davies is the move towards a point; the confluence of strands; the expectancy of attack rather than the dying away from it.

Orchestration is also used as an element in an isorhythmic process. Davies frequently refers to the interlocking isorhythmic blocks which exist in his music. He is extending the term's original meaning to apply to a number of factors in a musical event whose beginnings and endings do not coincide. These may include cantus statements, orchestrations, and

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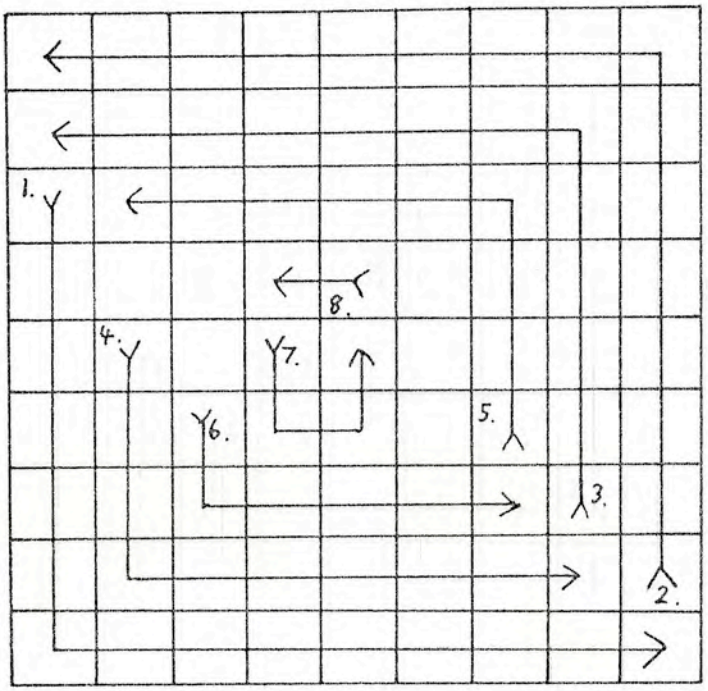
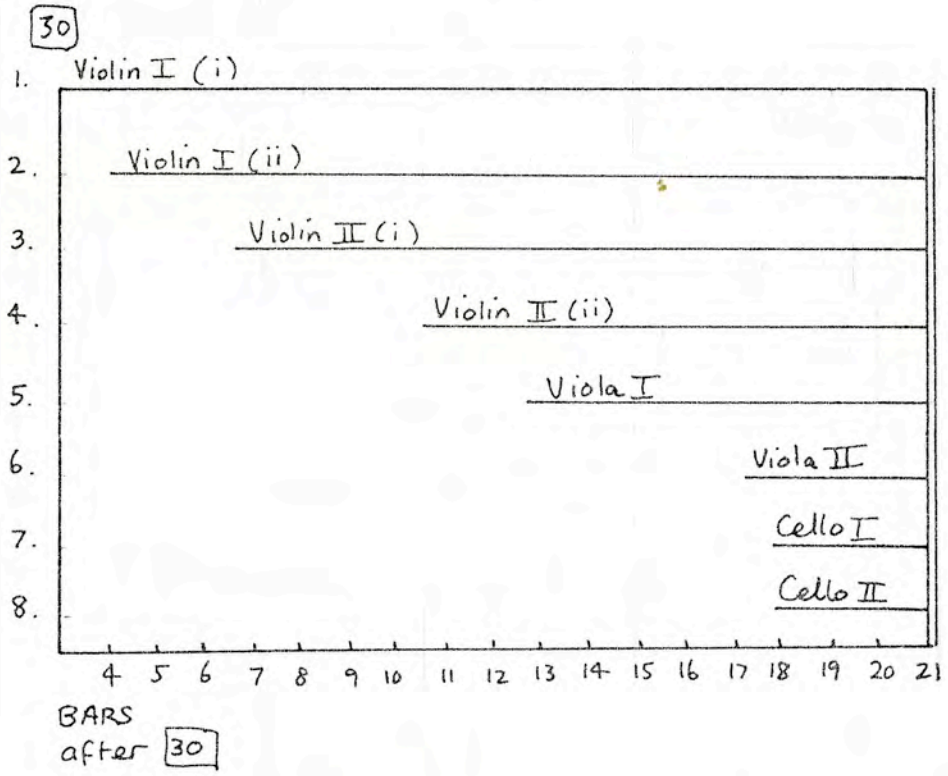
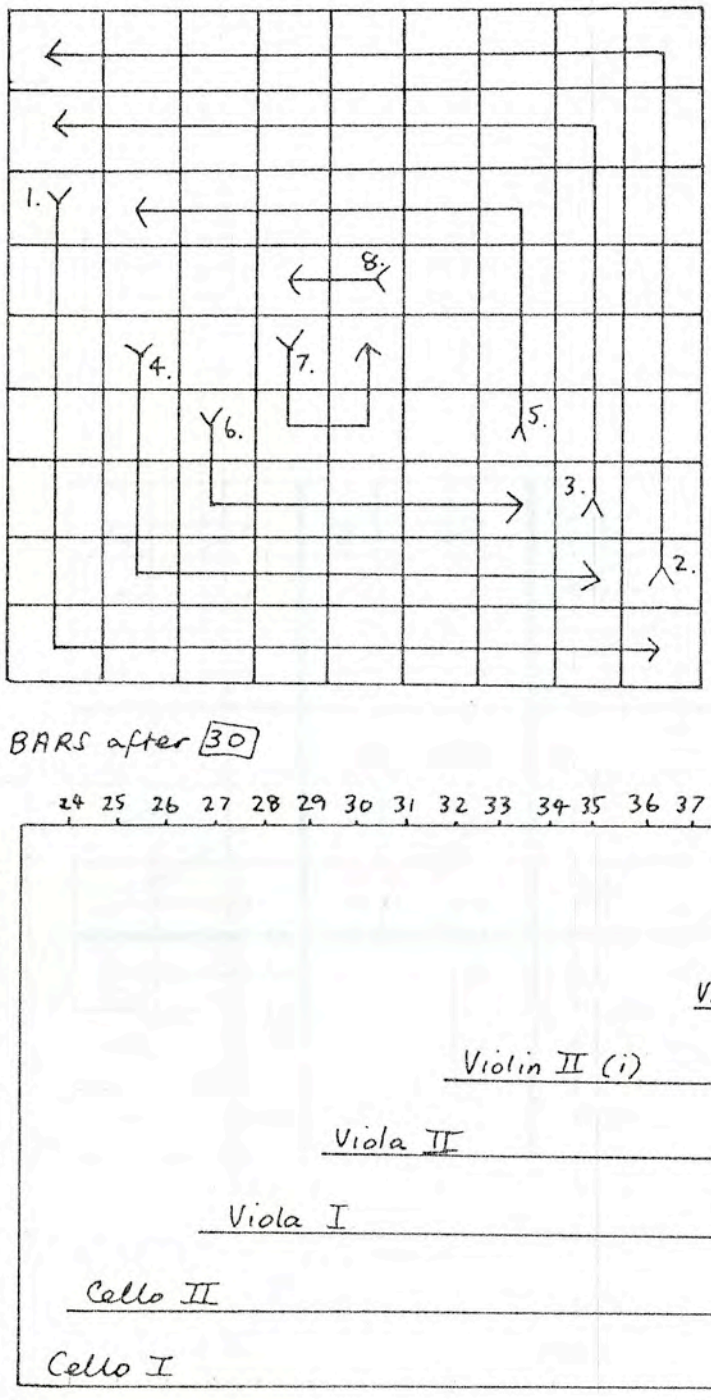
1. cf. Example 2.14, above.





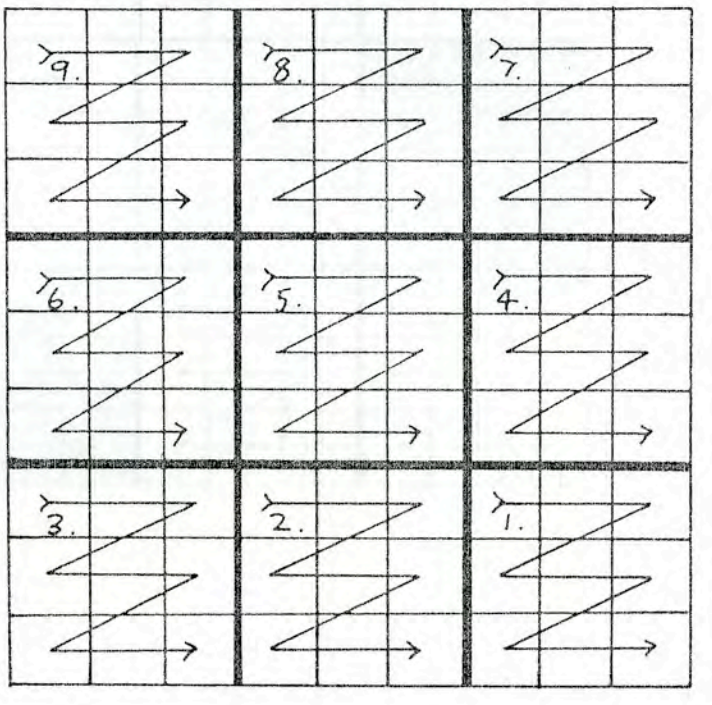
EXAMPLE 6.4.1 First Symphony, Fig. 30. Orchestral register and graded lengths of magic square as shaping forces.



EXAMPLE 6.4.2 First Symphony, Fig. 30 (second half of section).

rhythmic ideas. Such a process may be observed in the first major section of the First Symphony, from Figures 1/2 to Figure 16.

A permutation not used in Ave Maris Stella is employed, which treats the square as nine smaller squares. It is heard once through on the marimba in the following manner:



Marimba

Fig. 6 (7,8,9)

Fig. 4 (4,5,6)

Allegro Molto, Figs. 1/2 (1,2,3)

EXAMPLE 6.5 First Symphony, Figs. 1/2 to 8. Permutation of the Moon square.

Three passages using three small squares each are marked by double bar lines in the score at the opening Allegro Molto, Figure 4 and Figure 6.

Following this, the pattern is repeated in reverse order, starting from the top of the square: first on

cello and then on flutes. This time, however, four passages instead of three are marked out in the score. These are characterised by different instrumentation:

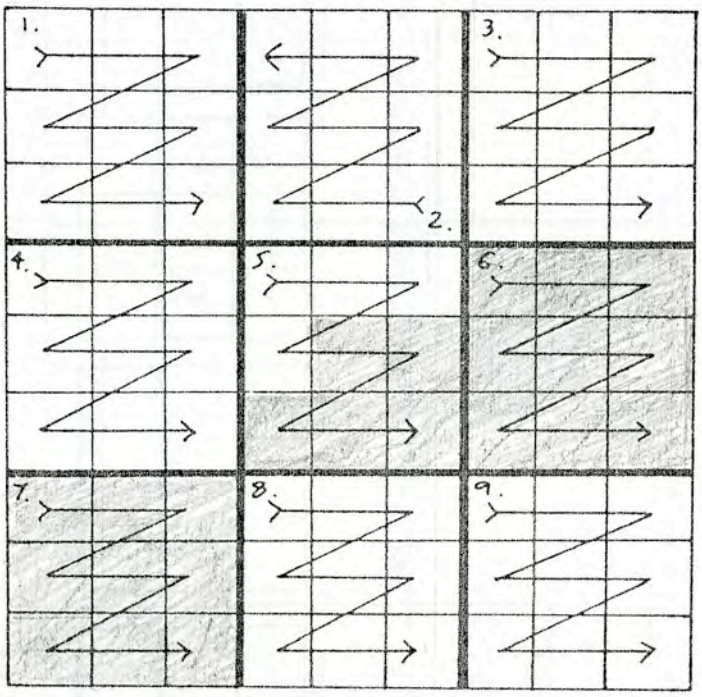


Fig. 8, cello (1, 2, 3)

Fig. 10, flutes, piccolo (4, 5)

Fig. 12, flute I (shaded area)

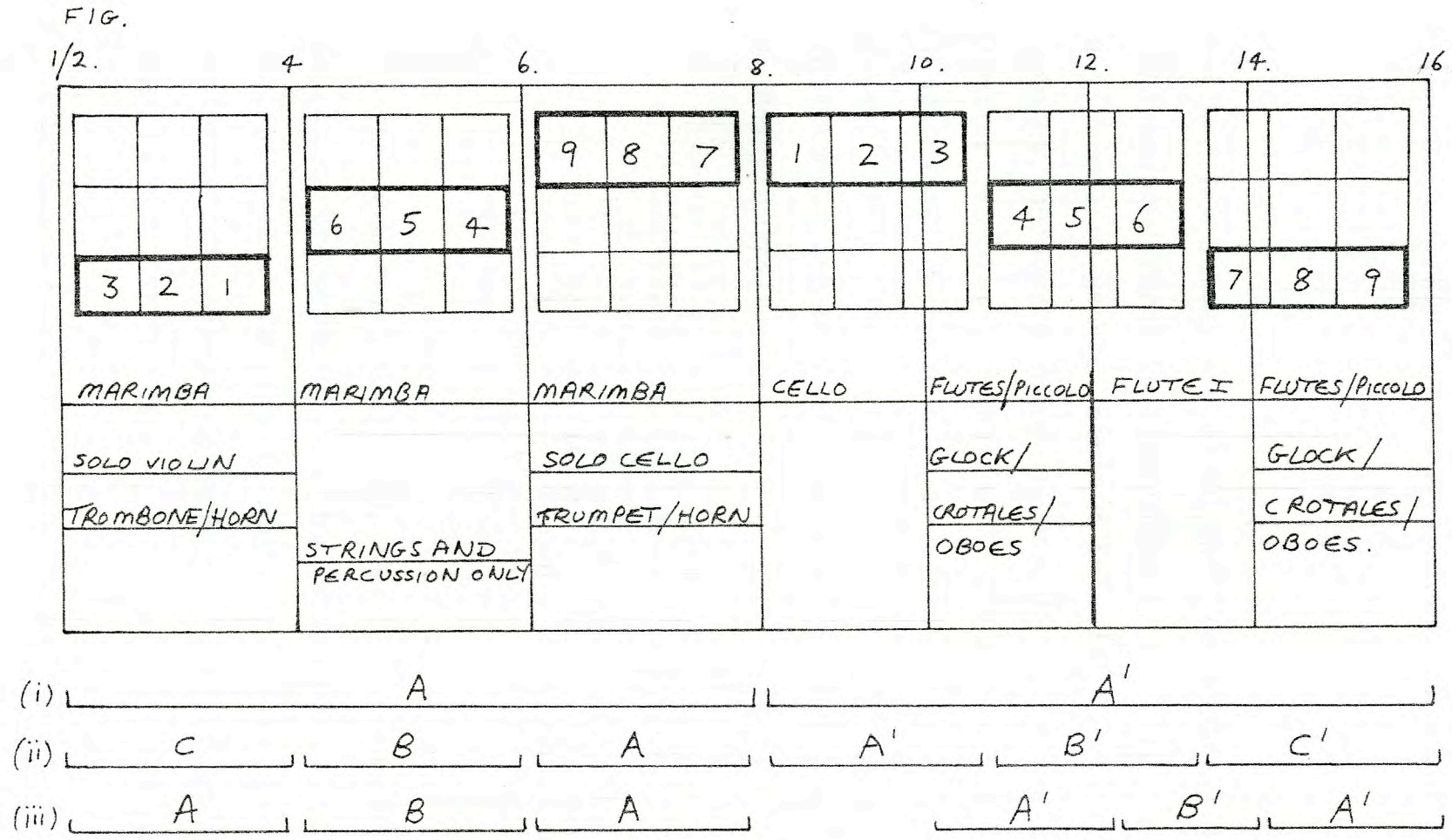
Fig. 14, flutes, piccolo (8, 9).

EXAMPLE 6.6 First Symphony, Figs. 8 to 16. Permutation of the Moon square.

Several different 'isorhythmic' units exist within this music. Example 6.7 demonstrates the interaction of three such units:

(i) The two halves of the section - Figs 1/2 to 8 and 8 to 16 - which are equal in length and each play through the square once.

(ii) The three passages into which the square divides, occurring in reverse order in the second half.



EXAMPLE 6.7 First Symphony, Figures 1/2 to 16.
'Isorhythmic' units.

(iii) The three passages in both halves which outline an ABA form in their instrumentation.

Earlier it was suggested that the absence of tonality as a shaping force is irrelevant to the articulation of any formal or generic concept in music, such as symphonic thought, because so many other elements exist with a similar organising potential.[1] The passage from the Symphony described in Example 6.7 above demonstrates Davies' particular ability to employ many such elements, interlocked and on various levels of time. As Leonard B. Meyer notes,

> .....it cannot be assumed that the hierarchic articulations created by the several parameters of sound are always congruent..... Indeed, it is partly such interplay among the shaping forces of music which prevents a musical event from being so congruently and definitively structured that the piece stops - has no further implications.[2]

The term 'hierarchy' suggests itself repeatedly when examining processes within this symphony and elsewhere in Davies' music. Two types of hierarchy have already been explored: the hierarchy implicit in the interaction of

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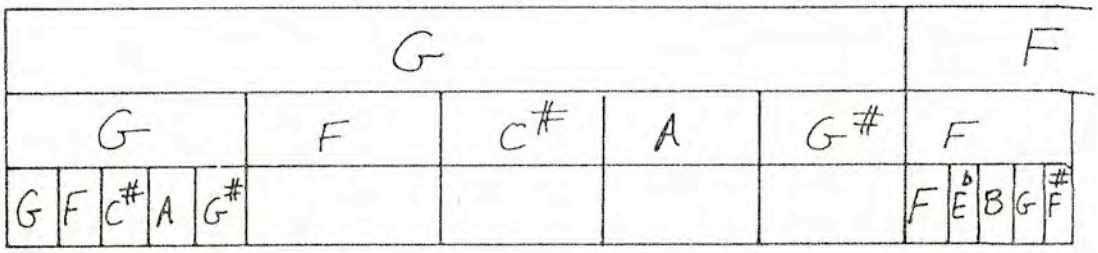
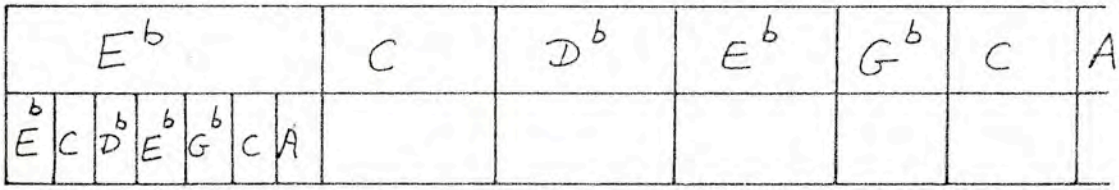
1. See above, p. 143.

2. Op. cit., p. 306.

different parameters such as orchestration and transformations,[1] and the vertical hierarchy of levels set up by the ordering of material into primary, secondary and decorative elements.[2] We have also touched upon another type: the linear hierarchy of harmonic articulations over greater or smaller spans of time. The most obvious example of this is in Prolation, and examples from the Second Taverner Fantasia have also been cited. In these earlier works, the higher level relationships are identical to the lower level ones:



EXAMPLE 6.8.1 Prolation, opening of first area. Uniformity of harmonic relationships on different levels.[3]



EXAMPLE 6.8.2 Second Taverner Fantasia, section 1(b). Uniformity of harmonic relationships on different levels.[4]

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1. See above, Example 6.6.
2. See above, pp. 133-137.
3. Discussed in detail above, pp. 36-40
4. See above, pp. 91-95.

These higher level relationships are made by a conscious application of a pre-determined set. It is a feature of later works, however, that higher level harmonic relationships are made by means related more to tonality than to serialism. As noted in Ave Maris Stella, the harmonic structure on a higher level stems not from successive notes of the magic square, but from an emphasis on diatonic triad movement.[1]

Such ideas lead inevitably to a comparison with the analytical method of Schenker. Christopher Wintle has observed that Davies himself has used Schenkerian terms in the description of his music.[2] Although the connection should not be pressed too far, it is clear that an approach involving a comparison of foreground and background layers, and a citing of motivic parallels on different levels, is valuable - and is a subject worthy of further investigation.

There is no doubt that Davies' stance on tonality has undergone considerable change during his career. In the early years he adopts a severe attitude:

> If one's material is properly organised, no incongruous tonal hierarchy will suggest itself insidiously..... [3]

Yet from 1976 he refers constantly to the dominants, sub-dominants and tonal centres in his work, and

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1. See above, Example 5.17.
2. Music Analysis I:1, 1982, p. 73.
3. The Listener, 8 October 1959, p. 564.

confidently asserts that the Second Symphony is 'in B minor'.[1] Admittedly, Davies' interpretation of such terms differs somewhat from the traditional meaning, but the fact that they are employed at all implies at least a sympathy with the hierarchic structuring of tonality.

Such matters demand attention beyond the scope of the present study, but our findings regarding the function of transformation processes enable us to answer, at least in part, a relevant question raised by Wintle. He refers to the Second Symphony, but the question might equally apply to the First:

> .....how do these tonal features integrate with the serially-derived transformational processes that generate so much of the music's surface? [2]

The answer lies in the degree to which the serial organisation of the process at the pre-compositional stage organises thought during the actual composition of the work. In Prolation, this happens to a very high degree; in the Taverner works, less so but still a significant amount. In Ave Maris Stella and the First Symphony, however, the serialisation takes place almost exclusively at the pre-compositional stage - in the formation of the square - and does not continue during the work's composition. Subsequent transform-

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1. Programme note for the Second Symphony, quoted in Griffiths: op. cit., p. 173.

2. Op. cit., p.73.

ations and harmonic relationships effected during the compositional stage do not reiterate this original serialisation, but play on its tonal and motivic implications.

If this is so, there is less of a dichotomy between the 'tonal' and 'serial' features of Davies' symphonies than might be implied in Wintle's question. In these works, at least, the transformations - although serially-derived - are not serially-dependent.

At this stage, our observations permit certain conclusions to be made about the findings of this study. The problem at the outset was one partly of identification and partly of definition. Many compositional techniques needed to be identified, and those without a commonly-accepted mode of definition - particularly transformation processes - also needed terms of definition. Beyond this largely descriptive task was one of evaluating the highly individual treatment of such techniques in the formation of Davies' unique musical language.

Three main points may be made about our findings. Firstly, many of Davies' basic compositional tools have been identified, and these are shown to be a combination of techniques borrowed from the past and ones evolved from twentieth-century serial practice. Through this the diversity of Davies' attitude to the past has become evident; borrowed music is important

not only as source material but as matter for quotation, distortion and parody. Analysis of the numerical workings in transformations and magic square permutations has shown a general simplicity in such processes; they are never used as ends in themselves but always as part of a larger musical event.

Secondly, we noted at the beginning of the study that Davies himself has referred to a lack of suitable terms of reference regarding transformation processes.[1] How far have these findings made possible a new way of describing such processes, and is one even necessary? It would seem that in many ways the function of the process is such that it may readily be understood in traditional terms. This has been shown by the frequent need to refer to tonality, particularly in the analysis of magic square works. Even in earlier music, such as the Second Taverner Fantasia, the description of events governed by transformation was facilitated by studying harmonic conflict and resolution. For it has been seen that a transformation process does not exist in isolation; if it did, an evaluation of its nature and purpose would be far more difficult. It is both the instigator of, and the operative factor within, a complex web of events to which many elements contribute. It may interact with a parallel dramatic process, as in Taverner, Act I/4, or with an independent method of orchestration, as in parts of the First Symphony.

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1. See above, vi.

This leads to our final point, which concerns the ways in which these findings demonstrate important aspects of Davies' overall attitude to composition. The techniques described have highlighted a hierarchic system whereby musical events are experienced on various levels of time and space. In terms of time, this is due to the use of proportionalism, mensural canon and isorhythm, which may be found in all the large works under discussion. In all of them, orchestration plays a key functional role, articulating divisions in time by the use of changing register and timbre. In terms of space, the hierarchy is made clear by a consistent reliance on a controlling cantus firmus, with various layers playing a decorative or supportive role. It has been shown that the concept of such a hierarchy has evolved throughout Davies' career, being made most clear by the use of the magic square in later works.

It is a sign of the importance and value of Davies' music that every stage in the uncovering of processes reveals new, uncharted fields for exploration. This is particularly so here with regard to tonality. At the end of an interim study we may only speculate about the future creations of this composer. The only certainties are that they will be unpredictable, thought-provoking, and a product of one of the great musical minds of our age.

APPENDIX A

BORROWED SOURCE MATERIAL

This list gives details of musical borrowings used either as the basis for a new composition or as a quotation within a work. It does not include arrangements. The list is not intended to be exhaustive, but provides some indication of where Davies has looked for source material, and the context of its application.

Abbreviations:

D	Dunstable: Complete Works. Musica Britannica.
FVB	Fitzwilliam Virginal Book.
HAM	Historical Anthology of Music I.
MC	Medieval Carols. Musica Britannica.
LU	Liber Usualis.
MS	Music of Scotland. Musica Britannica.

Numbers following source names refer to page numbers unless otherwise indicated.

Borrowed music	Probable source	Used by Davies in
Alma Redemptoris Mater Marian antiphon.	LU 273	Alma Redemptoris Mater.
Alma Redemptoris Mater Dunstable, motet.	D 106	Alma Redemptoris Mater
Ave Maris Stella Marian hymn.	LU 1259	Ave Maris Stella First Symphony
Deo Confitemini - Domino anonymous thirteenth-century motet.	HAM 33	Antechrist
Gloria Tibi Trinitas Antiphon.	LU 914	Taverner Seven In Nomine First Fantasia Second Fantasia
Hymn to St Magnus anonymous, twelfth-century.	HAM 22	Hymn to St Magnus
L'homme armé Pierre de la Rue, mass.	HAM 95	Vesalii Icones
L'homme armé anonymous mass.	Vatican Library	Missa super l'homme armé

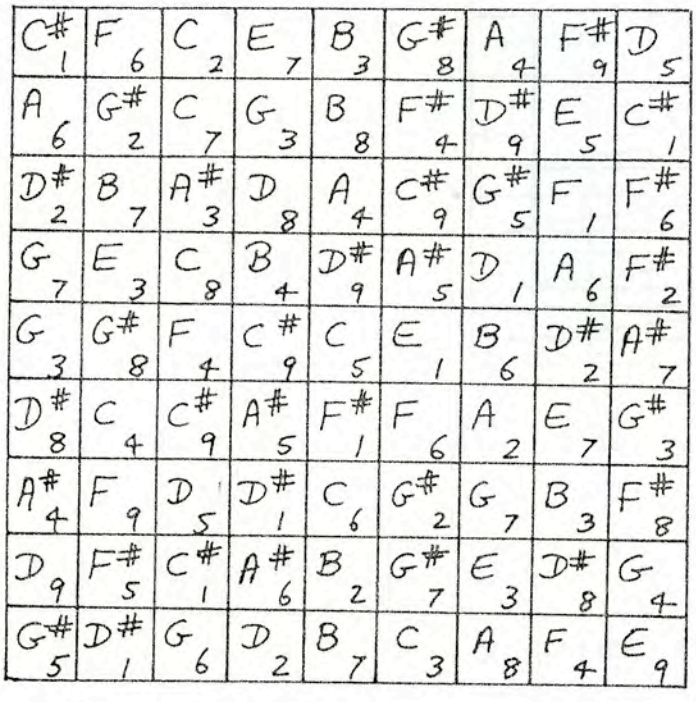
Borrowed music	Probable source	Used by Davies in
L'homme armé secular song.	HAM 95	Missa super l'homme armé
Nativitas Tua Dei Genitrix Virgo Marian antiphon.	LU 1627	Second Symphony
O God Abufe John Fethy.	MS 154	Psalm 124 Three Organ Voluntaries, No. 2
Psalm 124 David Peebles.	MS 138[1]	Psalm 124 Three Organ Voluntaries, No. 1
St Thomas' Wake John Bull, pavan.	FVB no. 36	St Thomas' Wake
Sederunt Principes Gradual.	LU 416	A Mirror of Whitening Light
Sub Tuam Protectionem Dunstable, motet.	D 125	Sub Tuam Protectionem
Te Lucis Ante Terminum Hymn for Pentecost.	LU 862	Te Lucis Ante Terminum

1. David Roberts has noted, in Contact 23, p. 27, that although Davies claims to use the setting by Peebles, the setting by Andrew Kemp on the same page bears more resemblance to Davies' Psalm 124.

Borrowed music	Probable source	Used by Davies in
To Many a Well anonymous fifteenth-century carol.	MC 104	Ricercar and Doubles
Veni Sancte Spiritus Antiphon.	LU 1837	A Mirror of Whitening Light
Veni Sancte Spiritus Dunstable, motet.	D 88	Veni Creator Spiritus
Victimae Paschali Laudes Sequence.	LU 780	The Martyrdom of St Magnus
Worldes Blis anonymous thirteenth-century song.	HAM 21	Worldes Blis

APPENDIX B

MAGIC SQUARE PERMUTATIONS IN AVE MARIS STELLA



EXAMPLE B.1 The magic square of the Moon, used in Ave Maris Stella.

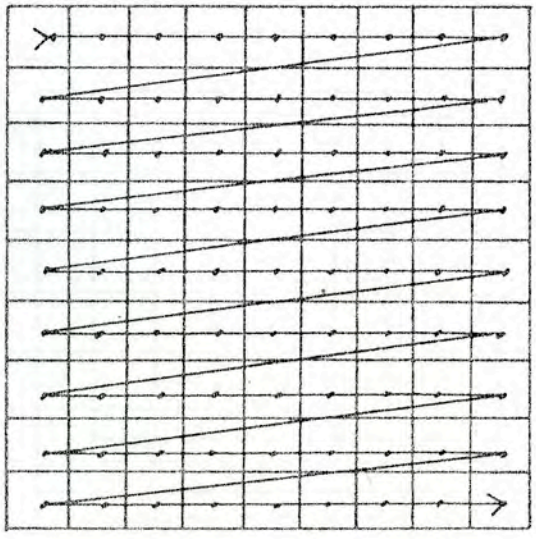
The following are permutations of the square used in each movement of Ave Maris Stella.

MOVEMENT I

PRIMARY EXPOSITION[1]

Instrumentation:

cello.



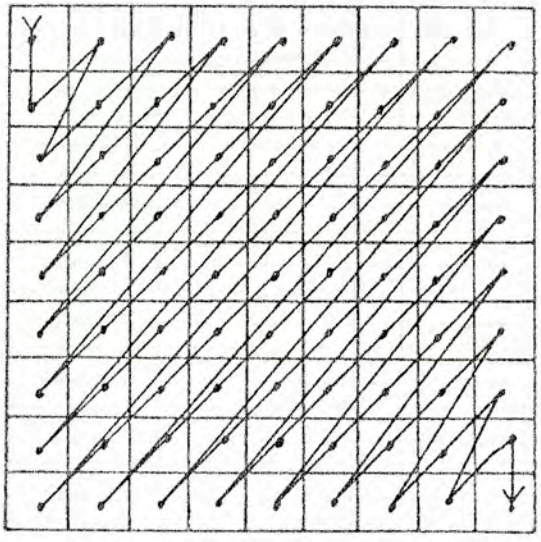
EXAMPLE B.2

MOVEMENT II

PRIMARY EXPOSITION

Instrumentation:

clarinet.



EXAMPLE B.3

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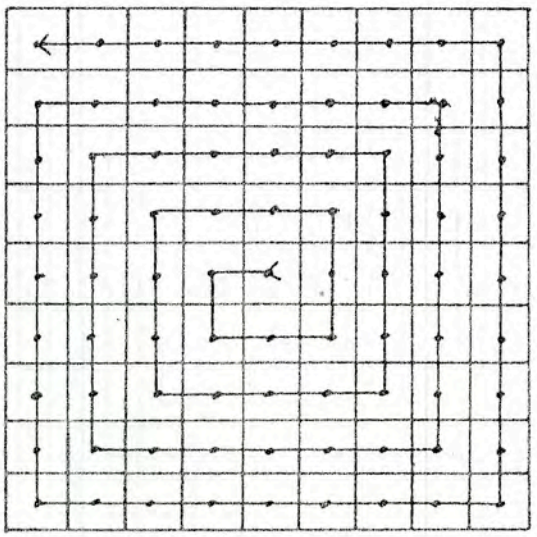
1. Primary and Secondary Expositions are explained above, p. 134-136.

MOVEMENT III

PRIMARY EXPOSITION

Instrumentation:

marimba and clarinet, alternating.



EXAMPLE B.4.1

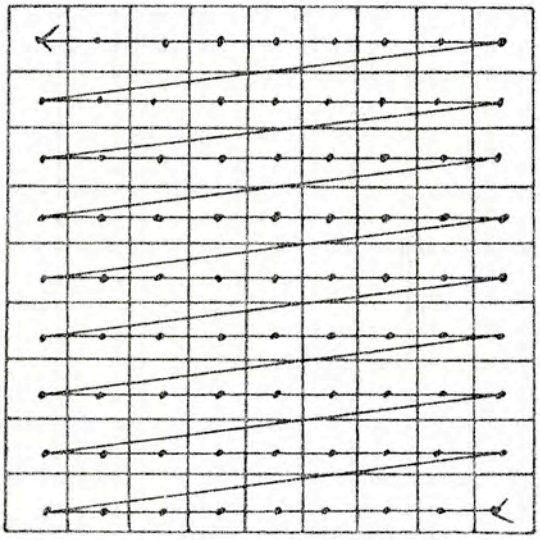
MOVEMENT III

SECONDARY EXPOSITION

Figure S to the end.

Instrumentation:

viola.



EXAMPLE B.4.2

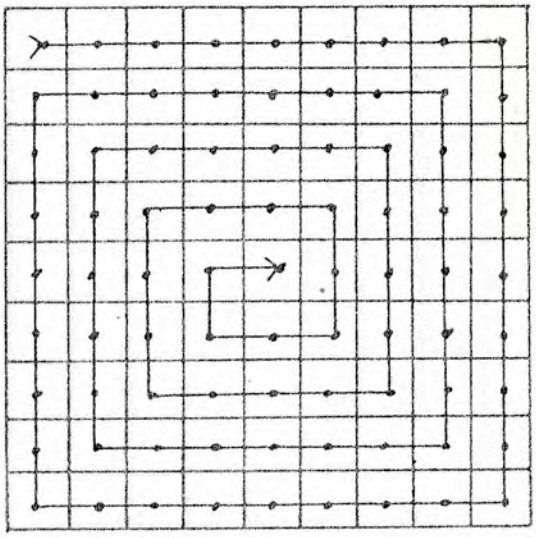
MOVEMENT III

SECONDARY EXPOSITION

Figures R to T

Instrumentation:

piano.



EXAMPLE B.4.3

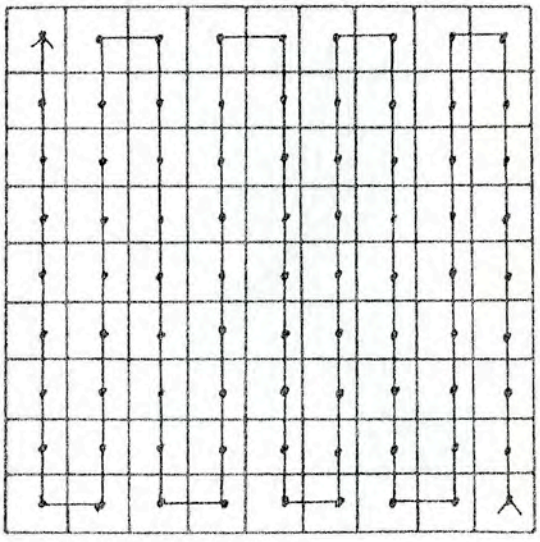
MOVEMENT III

SECONDARY EXPOSITION

Figures R to T

Instrumentation:

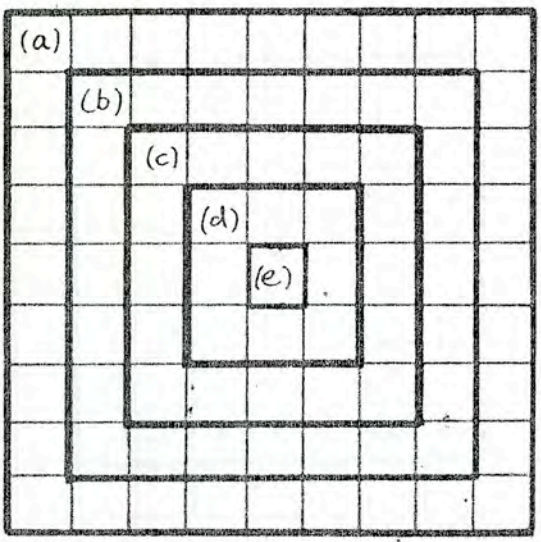
piano (grace notes).



EXAMPLE B.4.4

MOVEMENT IV

MOVEMENT VI



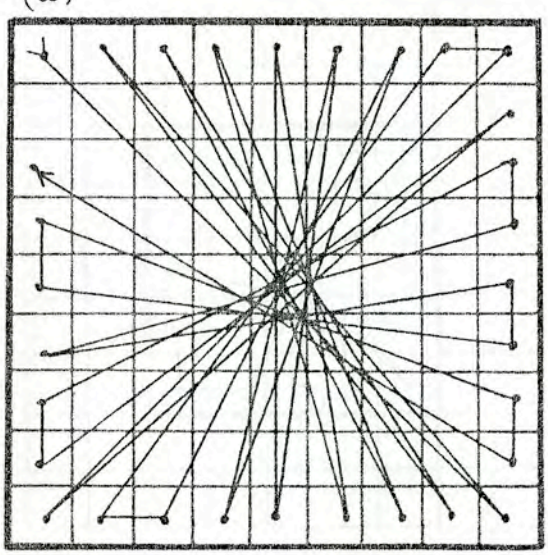
The square is treated as five squares of different sizes. (a), (b), (c), (d) and (e) occur one after the other, in reverse order in Movement VI.

EXAMPLE B.5.1

MOVEMENT IV

MOVEMENT VI

(a)



PRIMARY EXPOSITION

Instrumentation:

Movement IV: clarinet, viola and cello, alternating.

Movement VI: marimba.

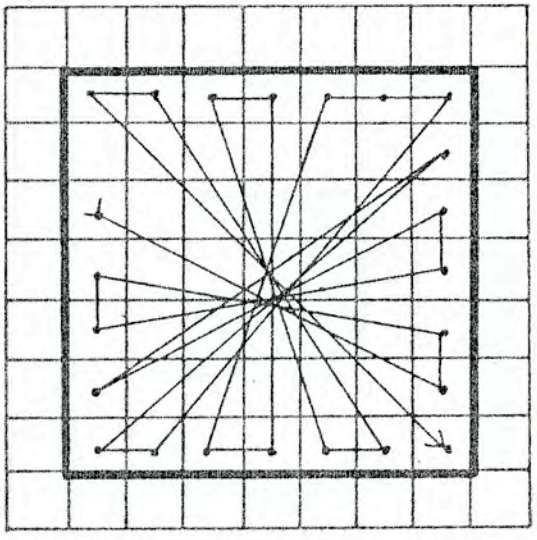
EXAMPLE B.5.2

MOVEMENT IV

MOVEMENT VI

PRIMARY EXPOSITION
(continued).

(b)



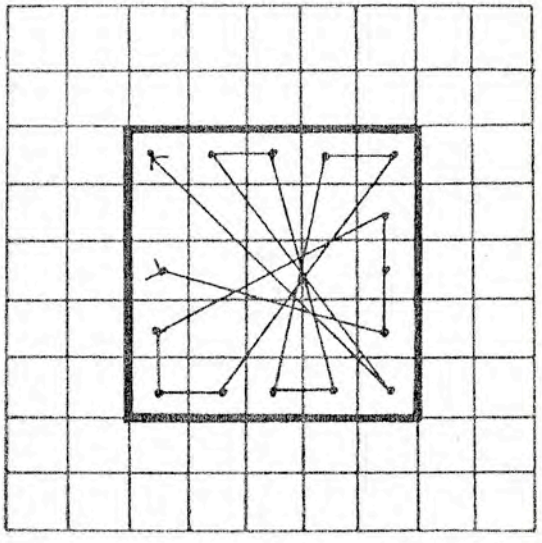
EXAMPLE B.5.3

MOVEMENT IV

MOVEMENT VI

PRIMARY EXPOSITION
(continued).

(c)



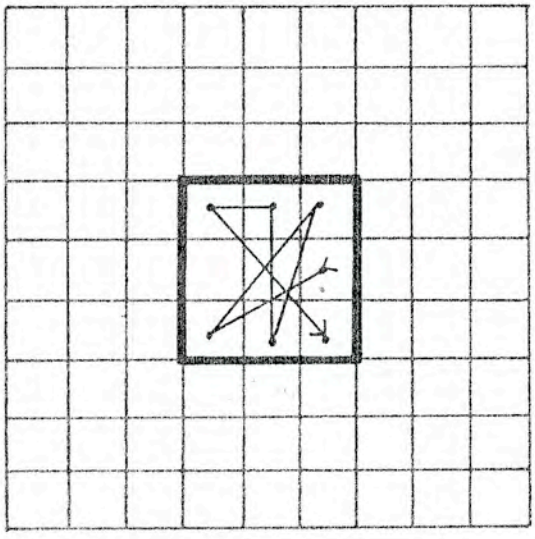
EXAMPLE B.5.4

MOVEMENT IV

MOVEMENT VI

PRIMARY EXPOSITION
(continued).

(d)



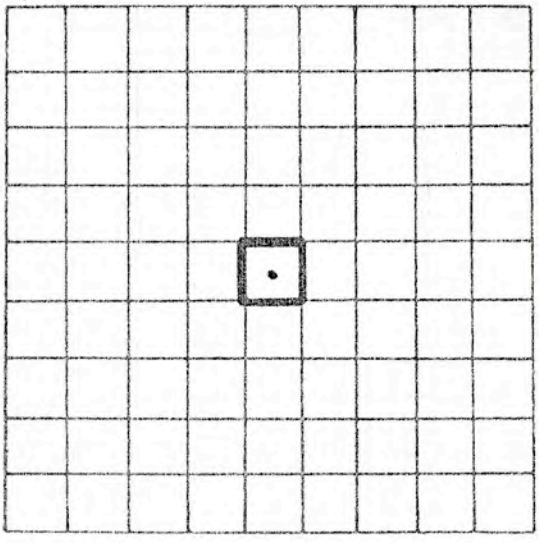
EXAMPLE B.5.5

MOVEMENT IV

MOVEMENT VI

PRIMARY EXPOSITION
(continued).

(e)



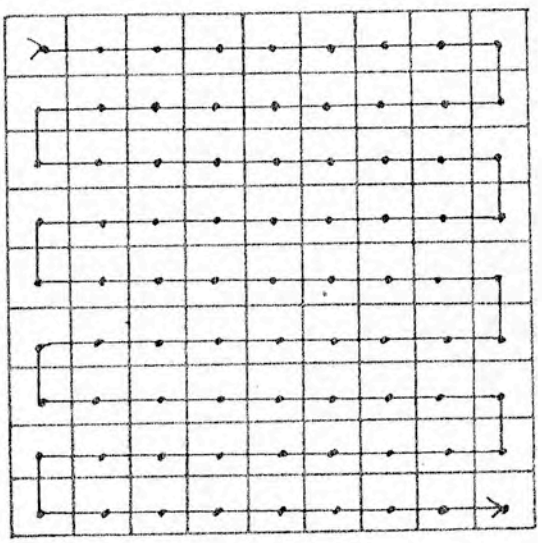
EXAMPLE B.5.6

MOVEMENT V

PRIMARY EXPOSITION

Instrumentation:

flute, clarinet, viola and cello alternating.

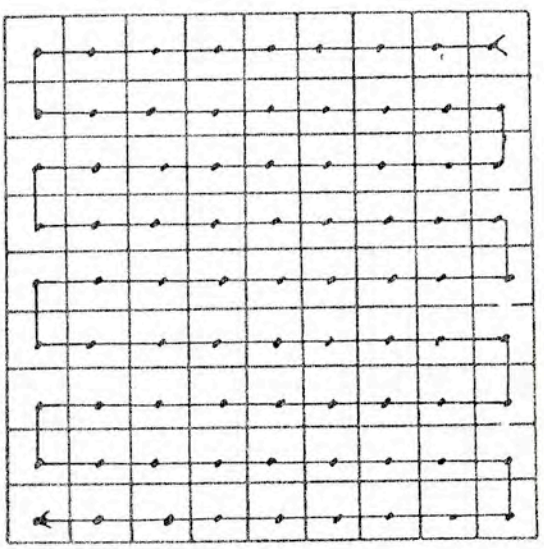


EXAMPLE B.6.1

MOVEMENT V

PRIMARY EXPOSITION

Figure F1 to the end (repeated in reverse order).



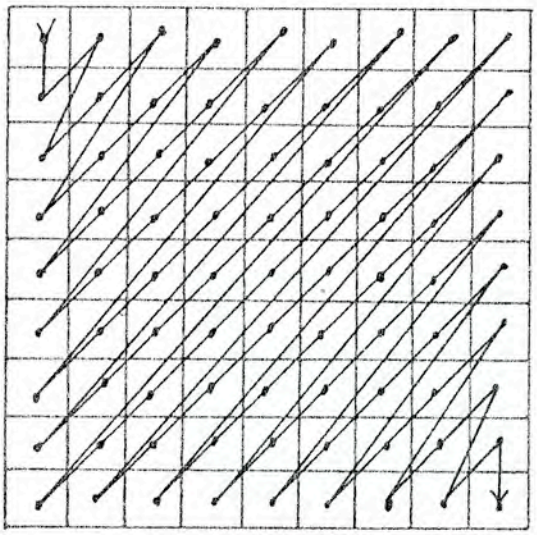
EXAMPLE B.6.2

MOVEMENT VII

PRIMARY EXPOSITION

Instrumentation:

all.



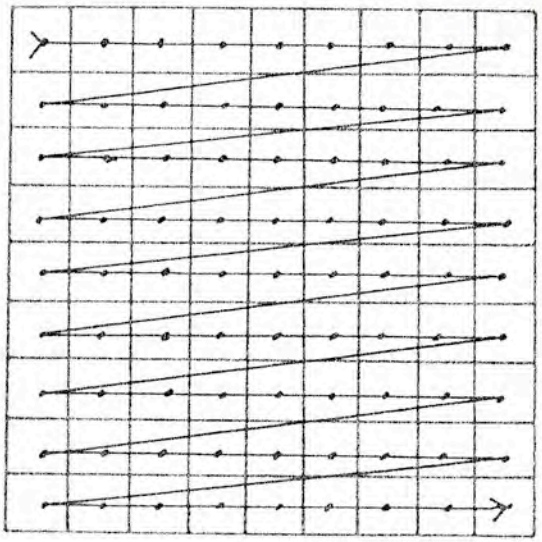
EXAMPLE B.7

MOVEMENT VIII

PRIMARY EXPOSITION

Instrumentation:

flute, cello and
clarinet, alternating.



EXAMPLE B.8.1

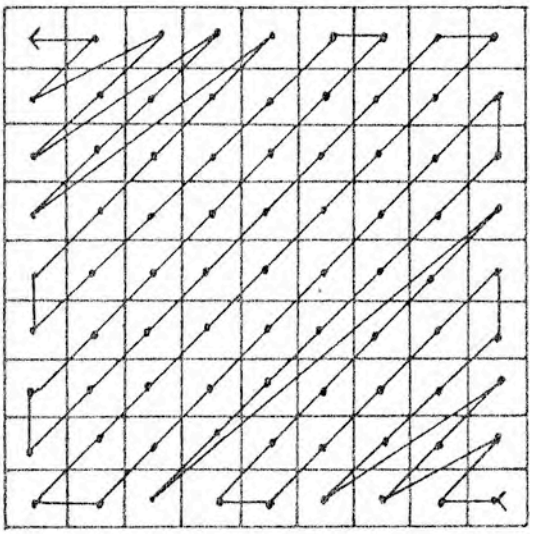
MOVEMENT VIII

SECONDARY EXPOSITION

Figures R1 to W1.

Instrumentation:

viola and cello.



EXAMPLE B.8.2

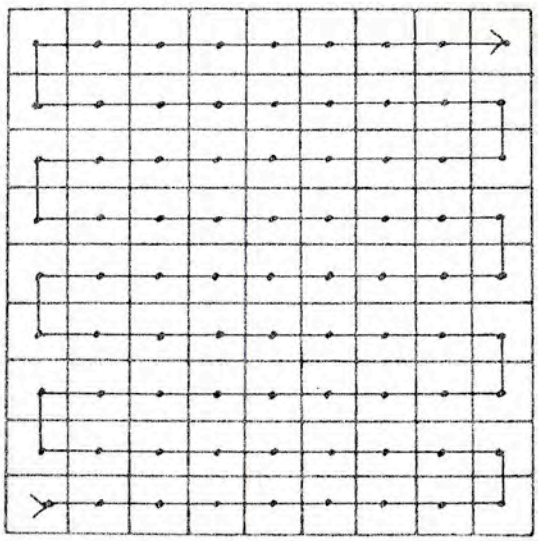
MOVEMENT VIII

SECONDARY EXPOSITION

Figures W1 to Z1.

Instrumentation:

viola, flute, cello
and viola, alternating.



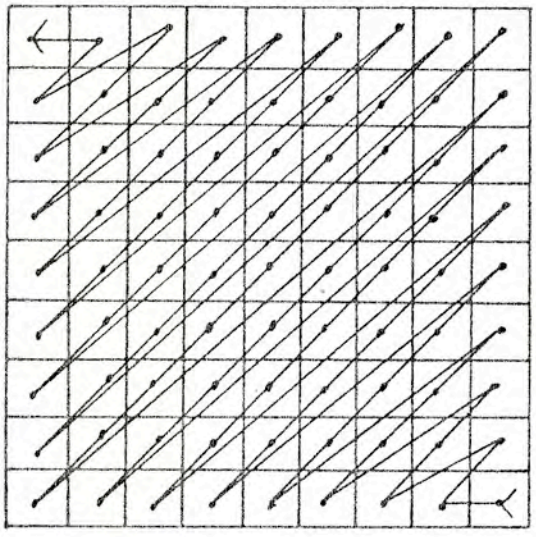
EXAMPLE B.8.3

MOVEMENT IX

PRIMARY EXPOSITION (a)

Instrumentation:

marimba.



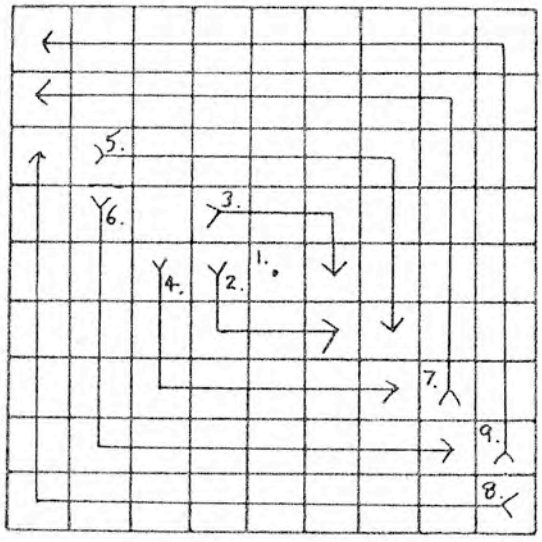
EXAMPLE B.9.1

MOVEMENT IX

PRIMARY EXPOSITION (b)

Instrumentation:

flute (1,3,7)
clarinet (2,4,9)
cello (5)
piano (6)
viola (8).



EXAMPLE B.9.2

WORKS CITED

1: PETER MAXWELL DAVIES[1]

Alma Redemptoris Mater for instrumental ensemble	Schott	1957
A Mirror of Whitening Light for chamber ensemble	Boosey & Hawkes	1977
Anakreontika for mezzo-soprano and instrumental ensemble	Chester	1976
Antechrist for instrumental ensemble	B & H	1967
Ave Maris Stella for instrumental ensemble	B & H	1975
Dunstable: Veni Sancte - Veni Creator Spiritus realisation and original work for instrumental ensemble	B & H	1972
Ecce Manus Tradentis for voices and instrumental ensemble	B & H	1965
Eight Songs for a Mad King for male voice and instrumental ensemble	B & H	1969

1. For a comprehensive classification of all Davies' music up to 1980, the reader is referred to The Complete Catalogue of Published Works, ed. J. Arnold, London, 1981.

First Fantasia on an In Nomine of John Taverner for orchestra	Schott	1962
Five Klee Pictures for orchestra	B & H	1959, revised 1976
Five Voluntaries arranged for school or amateur orchestra	Schott	1960
Hymn to St Magnus for instrumental ensemble with mezzo- soprano obbligato	B & H	1972
Leopardi Fragments for soprano, contralto and instrumental ensemble	Schott	1962
Missa super l'homme armé for speaker or singer and instrumental ensemble	B & H	1968, revised 1971
O Magnum Mysterium for choir and instrumental ensemble	Schott	1960
Prolation for orchestra	Schott	1958
Psalm 124 arranged for instrumental ensemble	B & H	1974

Purcell: Fantasia on a Ground and Two Pavans realisation for instrumental ensemble	B & H	1968
Renaissance Scottish Dances arranged for instrumental ensemble	B & H	1973
Revelation and Fall for soprano and instrumental ensemble	B & H	1965, revised 1980
Ricercar and Doubles on 'To Many a Well' for instrumental ensemble	Schott	1959
St Thomas Wake foxtrot for orchestra on a pavan by John Bull	B & H	1969
Second Fantasia on an In Nomine of John Taverner for orchestra	B & H	1964
Seven In Nomine arrangements and original works for instrumental ensemble	B & H	1965
Sinfonia for chamber orchestra	Schott	1962
Stedman Doubles for clarinet and percussion	B & H	1956, revised 1968
String Quartet	Schott	1961

Sub Tuam Protectionem for piano	Chester	1969
Symphony No. 1 for orchestra	B & H	1976
Symphony No. 2 for orchestra	B & H	1980
Taverner opera in two Acts	B & H	1962-1968
Te Lucis Ante Terminum for choir and instrumental ensemble	Schott	1961
The Lighthouse chamber opera in one Act	Chester	1979
The Martyrdom of St Magnus chamber opera in one Act	B & H	1976
Three Organ Voluntaries	Chester	1976
Three Studies for Percussion for eleven percussionists	Chester	1975
Veni Sancte Spiritus for voices and small orchestra	B & H	1963
Vesalii Icones music-theatre work for dancer, solo cello and ensemble	B & H	1969
Westerlings for unaccompanied choir	B & H	1977
Worldes Blis for orchestra	B & H	1969

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